Embedded NVR User Manual

V1.1

June 2013

1. PRECAUTIONS

Please observe the following precautions, in order to avoid damage or loss of data caused by improper operation.

NVR should work on proper temperature and humidity.

Do not install NVR in humid, dusty or smoky environment.

Require a solid mounting surface for installation.

Do not block any ventilation openings. Install under the manufacturer's instructions.

Do not spill liquid of any kind on device.

Do not put any other equipment on device.

Do not dismantle the device.

Select specified HDD by manufacture.

2. NOTE

This user manual is for reference only, subject to available products.

This user manual may contain inaccurate data or printing error.

Updates to the manual or products themselves will occur without further notification.

All pictures not from the same machine, showing illustrative purposes only.

Contact the customer service department when you have any question or want newest software and file.

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3. PRODUCT INTRODUCTION

3.1. SUMMARY

Our Embedded Digital Video Recorder is an excellent digital surveillance product which adopts H.264 video compression, hard disk recording, TCP/IP transmission, and a Linux based OS in addition to some of the more advanced technologies in the information technology industry. This enables a more stable, reliable and high picture quality.

These products support synchronized video and audio recording, playback, and monitoring. This series also supports network based system control, as well as excellent network streaming capabilities.

3.2. FEATURES

LIVE VIEW

CVBS interface, TV, VGA/HDMI synchronous output.

Decoding processing functions

H.264 video compression, G.711 audio decording compression, Supports up to 1080P resolution decoding .

RECORDING

Recording modes include manual, time, alarm, motion detection, etc.; Support SATA HDD and local disk S.M.A.R.T. technology, Support USB backup and internet backup.

PLAYBACK

Playback search by various conditions, local and network playback; support multiple channel simultaneous playback , support fast, slow, rewind and frame mode; support exact time playback.

CMERA CONTROL AND ALRM

Remote camera control, Multi-channel alarm input interface for connecting various types alarm equipment; Motion detection alarm, video loss alarm, masking alarm; Multi-channel alarm output, alarm linkage and on-site lighting control.

COMMUNICATION INTERFACE

USB 2.0 high speed interface connecting various backup devices; Standard Ethernet interface, work under various networks.

NETWORK PROTOCAL

Support TCP / IP, UDP, RTP / RTSP, DHCP, PPPoE, DDNS, NTP etc.; support network real-time live view, recording, playback, control; built-in WEB Server, IE browser for direct access.

OPERATION MODE

Support the front panel, remote controls, mouse and so on many kinds of operating mode; With simple, intuitive graphical; With simple, intuitive graphical interface.

3.3. INSTALLATION

3.3.1. CHECK NVR AND ACCESSORIES

Please carefully check the contents as packing list. If any of the items are missing, please contact with your dealer.

3.3.2. HDD INSTALLATION

Preparation

Prepare a Cross Screwdriver.

Note: HDD quantity by each model's specifications shall be final, HDD capacity up to 64 TB.

Steps

Remove the metal top cover by removing two screws from the sides of the cover.

Place the hard disks on a flat table and fasten it by screws.

Connect the power and data cables to the HDD.

Reinstall the metal top cover and fasten it by screws.

Caution

Only use HDD specified by the manufacturer.

HDD will be formatted automatically during startup, it may cause data loss.

Recording duration is decided by HDD capability and NVR parameters (recording setup, encoding setup). Please see the form in chapter 7.2.

3.3.3. WIRING INSTALLATION

Preparing for installation

Camera, displayer, AV cable, cable, mouse, other kinds cables.

Installation Steps

NVR in a horizontal position, connect camera to video input interface in back panel.

Connect video output to the displayer.

Connect cable to RJ45 interface when access network.

Mouse should be USB interface type, front or back panel USB interface both work.

Power supply.

Caution

For an external alarm device or PTZ, please refer to the relevant instructions.

NVR power lines should be under all lines connected correctly.

⚠ Note the power parameters when access to a variety of power.

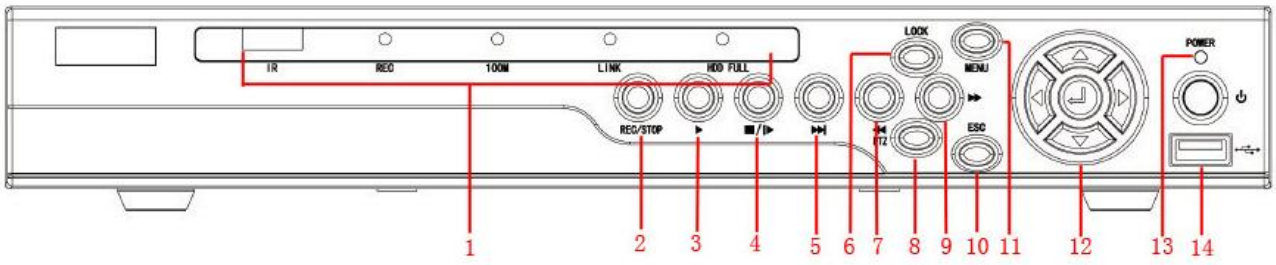
3.4. PANEL INTRODUCTION

3.4.1. FRONT PANEL

NVR Series

8Ch NVR

Buttons on Front Panel



8CH NVR Front Panel and button introduction

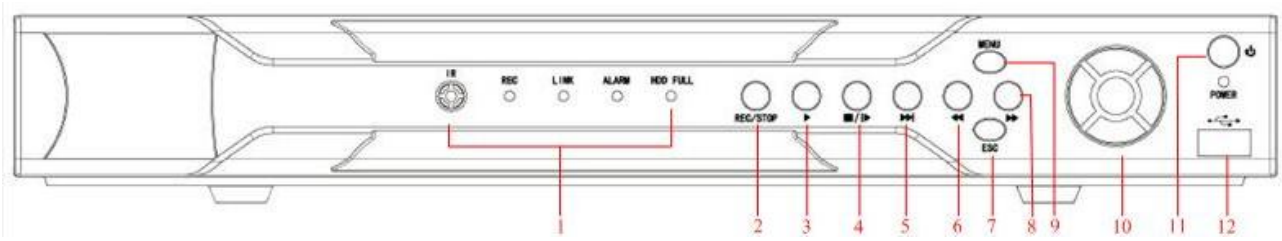
NO.	TYPE	Function
1	IR receiver	Remote control receiver
	Status	Rec、Net、Alarm、Hdd Status indicator

	indicator	
2	REC/STOP	Recording control buttons
3	▶	Playback/play
4	■/▶	Playback/play by frame
5	▶▶	Slowly playback
6	LOCK	Lock System
7	◀◀	Fast backward playback
8	PTZ	PTZ Controler
9	▶▶	Fast forward playback
10	ESC	Exit key
11	MENU	Main menu
	Direction keys	direction key include: up【▲】、down【▼】、left【◀】、right 【▶】four buttons.
	Enter	Confirm operation
13	POWER	Power On/Off system
14	USB	Mouse or storage device connected

8CH NVR Front Panel and button introduction

16CH、32CH NVR

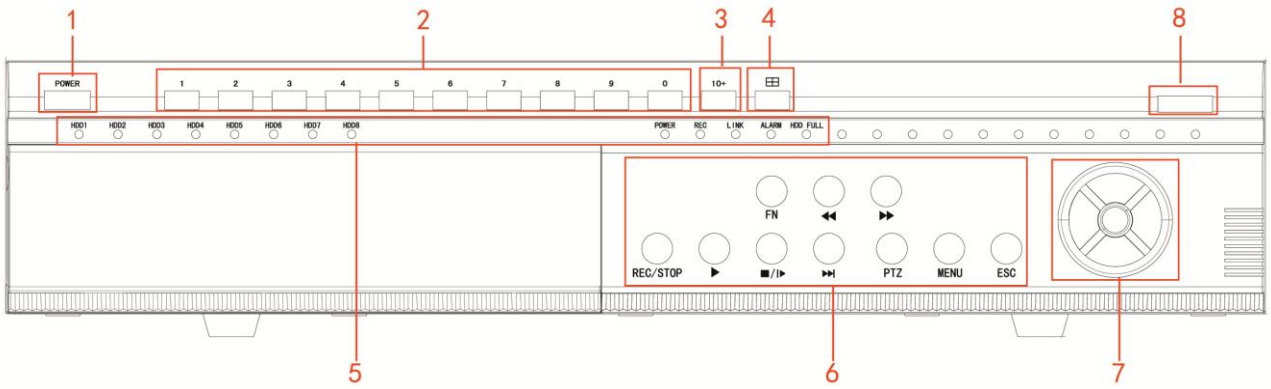
Buttons on Front Panel



16CH、32CH NVR Front Panel and button introduction

NO.	TYPE	FUNCTION
1	IR receiver	Remote control receiver
	Status indicator	Rec、Net、Alarm、Hdd Status indicator
2	REC/STOP	Recording control buttons
3	▶	Playback/play
4	■/▶	Playback/play by frame
5	▶▶|	Slowly playback
6	◀◀	Fast backward playback
7	ESC	Exit key
8	▶▶	Fast forward playback
9	MENU	Main menu
	Control button	direction key include: up【▲】、down【▼】、left【◀】、right 【▶】four buttons.
	Enter	Confirm operation
11	POWER	Power On/Off system

12	USB	Mouse or storage device connected



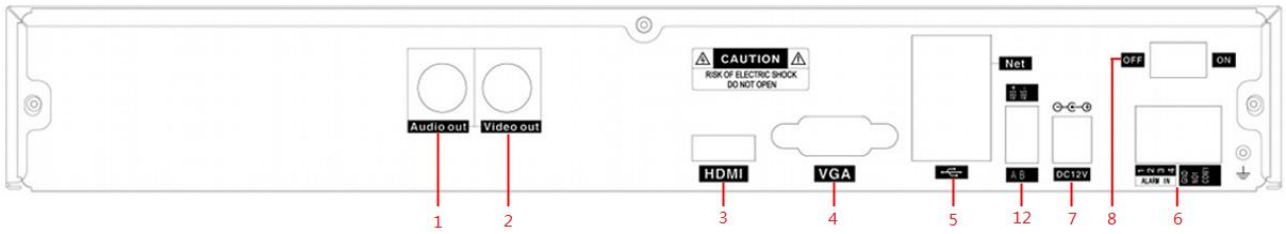
32CH NVR Front Panel and button introduction

NO.	TYPE	NAME	FUNCTION
1	POWER	POWER	Power On/Off system
2	CHANNEL	1-16	Select channel
3	Log off	Lock	Log off the user logged in
4	Multi-Video	田	Multiple Video switch
5	Status lamp	HDD1-8	Lit means hard disk is recording
		POWER	Power indicator
		REC	Record indicator
		LINK	Network indicator
		ALARM	Alarm indicator
		HDD FULL	Hard disk full indicator

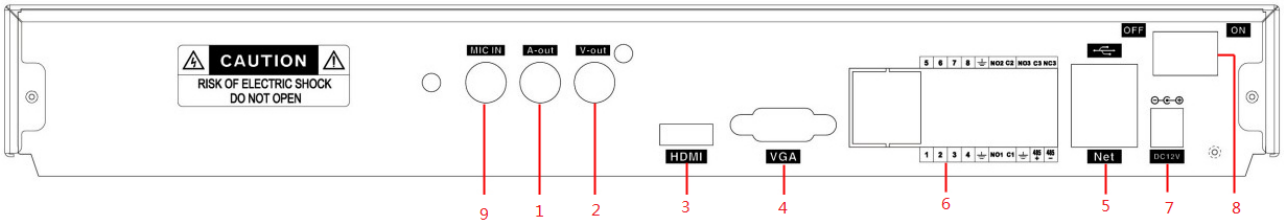
6	Function key	REC/STOP	Enable/disable manual record
		◀◀ ▶▶	Playback fast forward/fast backward
		FN	Display/hide playback toolbar
		▶	Playback/play
		■/▶|	Playback pause/play frame by frame
		ESC	Exit key
		▶▶|	Slow play at playback
		MENU	System main menu
		PTZ	Initiate PTZ control interface
7	Control keys	Direction keys	direction key include: up【▲】、down【▼】、left【◀】、right 【▶】four buttons.
8	Remote control	IR	Receive the signal sent by remote control

3. 5. BACK BOARD INTERFACE INTRODUCTION.

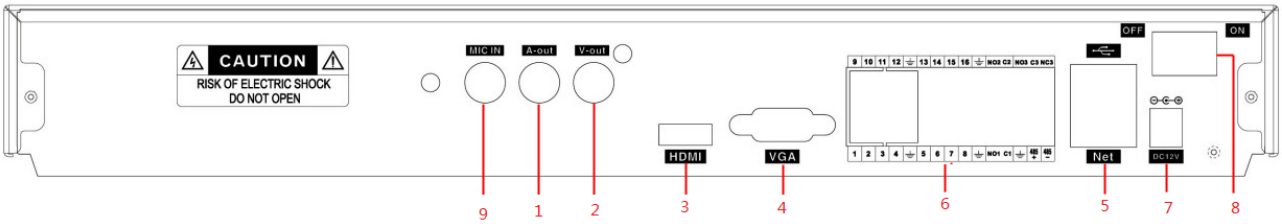
NVR Series



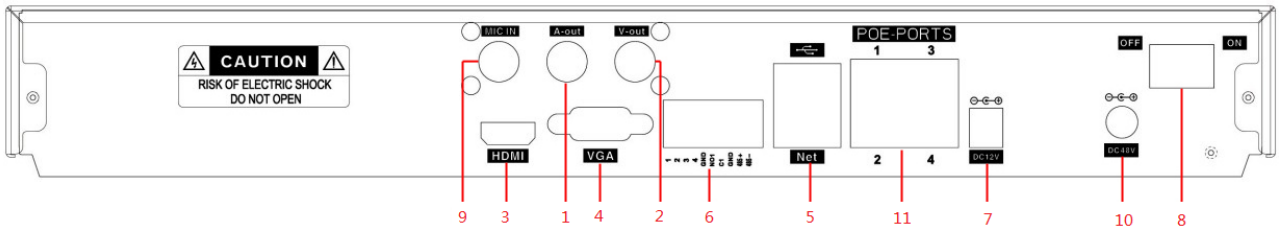
8CH back board interface



16CH back board interface



32CH back board interface

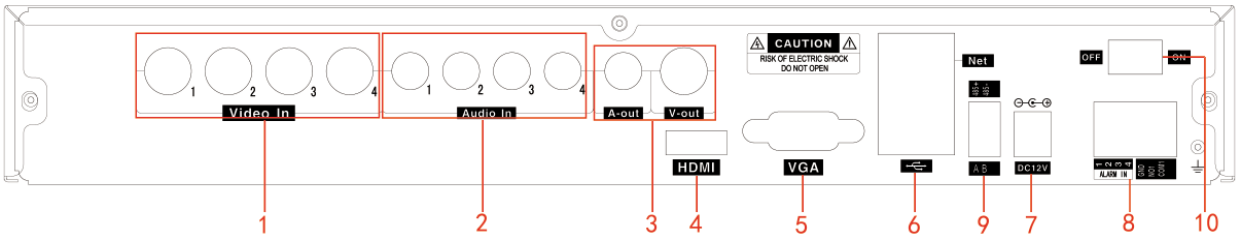


8CH（POE）back board interface

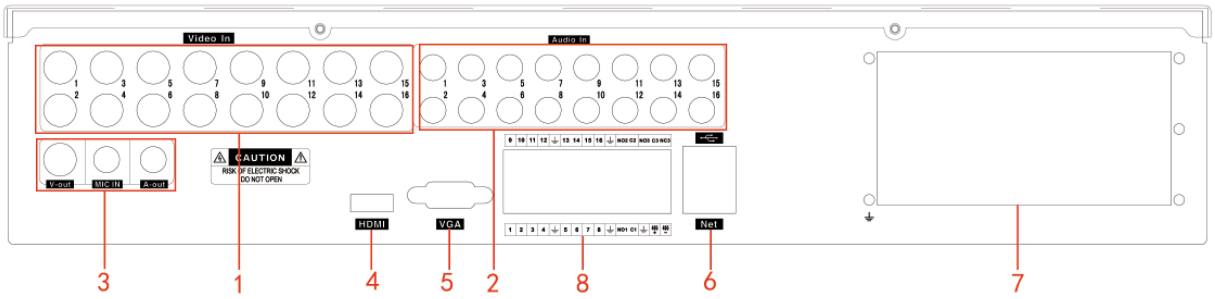
NO.	TYPE	FUNCTION

1	AUDIO OUT	Audio output
2	VIDEO OUT	Video output connecting TV or monitor, standard BNC connector
3	HDMI	High definition interface
4	VGA	VGA interface
5	LAN/ USB	Network interface/ Used to connect mouse or back up
6	ALARM IN/OUT	Alarm on-off input/ Alarm relay output
7	DC+12V IN	DC 12V/3.42A
8	ON/OFF	Power switch
10	POE POWER	DC 48V POWER IN
11	POE SWITCH	4CH POE POWER RJ-45
12	RS485	RS 485 for connecting PTZ

HVR Series



4CH back board interface



16CH back board interface

NO	TYPE	FUNCTION
1	Video In	For connecting analog video signal input (BNC)
2	Audio in	For connecting audio signal
3	V-out	One video output for connecting TV or monitor (BNC)
4	HDMI	High definition interface
5	VGA	VGA interface
6	LAN、USB	Network interface/ Used to connect mouse or back up
7	POWER	POWER IN
8	ALARM IN/OUT	Alarm on-off input/ Alarm relay output
9	RS485	RS 485 for connecting PTZ
10	ON/OFF	Power switch

3.5.1. RARE PANEL I/O INTERFACE

NVR series

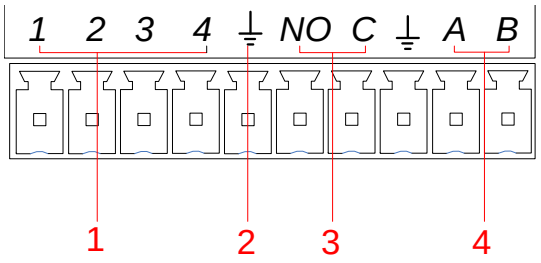


DIAGRAM 3-1 8CH I/O INTERFACE

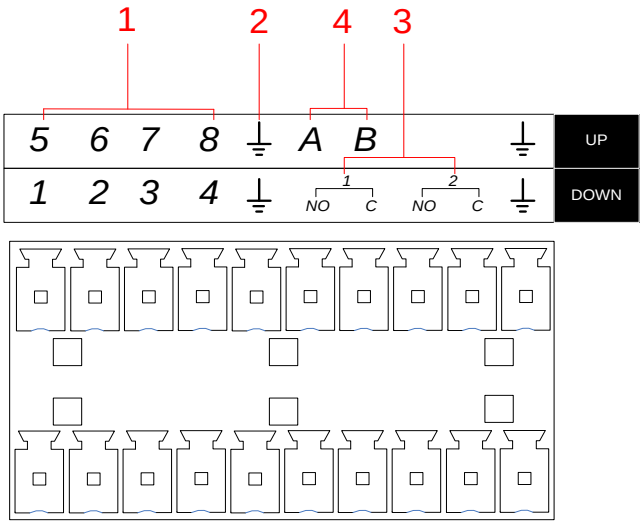


DIAGRAM 3-2 8CH I/O INTERFACE

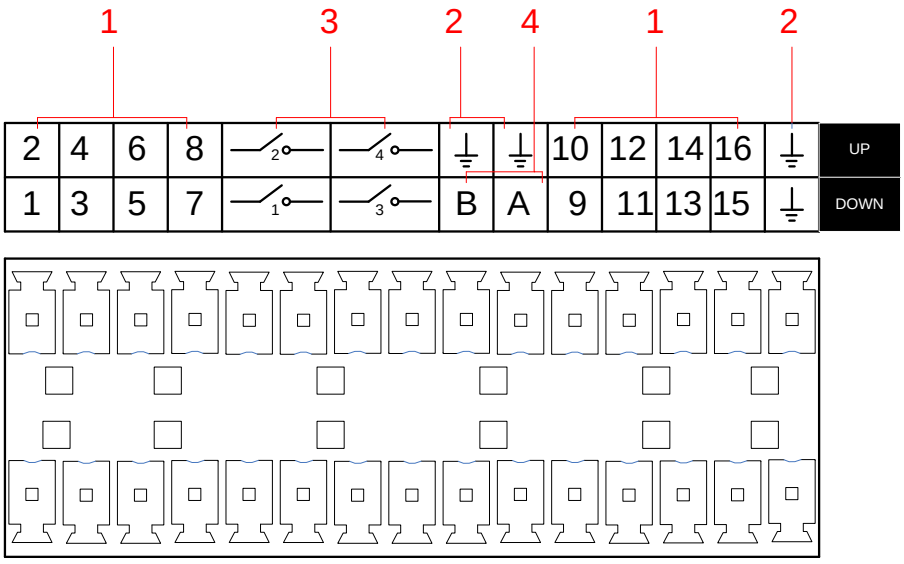


DIAGRAM 3-3 16CH I/O INTERFACE

Rare Panel:

Index	Name	Description
1	Alarm input	Connection for external Alarm Peripherals(PIR Sensor, Alarm Panel).
2	GND	Grounding.
3	Alarm output	Connection for external devices (Pezos, buzzer, siren).
4	RS-485	Communication terminal for Pan/Tilt/Zoom cameras.

FORM 3-1 NVR I/O DESCRIPTION

Alarm Input Connection

Alarm input type support NO/NC.

Com ports connect with NVR.

NC/NO port connect to NVR.

Alarm detector adopts external power supply, use same ground with NVR.

Alarm Output Connection

Alarm output is relay output, please refer to the relay parameters to avoid overload and damage the host.

Contact Material	Silver	
Electric property	Maximum switching power	240VA，48W
	Maximum switching voltage	125VAC，60VDC
	Maximum	2A

FORM 3-2 RELAY PARAMETERS

P/T/Z Connection

A, B ports of RS-485 link with A, B ports of PTZ decoder. A is the RS-485+ terminal, B is the RS-485 – terminal. Parallel connect 120Ω resistances at A, B ports to reduce signal reflex if there are several PTZ decoders.

3.6. MOUSE

In addition to front panel keys and remote control menu, the user can use mouse for menu functions. Insert mouse with USB interface into machine panel.

Click Left Button

If the user does not log in, password box will pop up first; click the left mouse button to enter the main menu when real-time monitoring.

Left click mouse the Options icon enter the menu.

Exact Instructions on control

Change the state of check box and dynamic detection block.

Click the combo box drop-down list will pop up.

Under 3D PTZ control mode, click the mouse and drag to lower right can achieve 3D PTZ control .drag from lower right to up left, make 3D PTZ control narrow, details refer to 4.1.2 PTZ.

Double Click Left Button

Select and confirm or open, for example, double-click playback video.

Under multi-screen double click one channel can make the picture full screen; double-click again to return to the previous multi-screen.

Click Right Button

Pop-up context menu under monitor screen

Exit without saving under menu interface.

Turning Wheel

Increase or decrease value when fill digital box Switch combo box options.

Flip up and down for list box.

Achieve PTZ 3D zoom function.

Mouse Move

Select controls in current coordinates to move.

Mouse Drag

Select motion detection area.

Set up regional coverage area.

Select 3D PTZ zoom function.

3.7. INPUT METHOD

In the input box, choose numbers, symbols, case in English input. Click left mouse button to select value; ←means backspace, _ means a space.

Letter Input Interface

DIAGRAM 3-7LETTER INPUT INTERFACE

Number Input Interface

DIAGRAM 3-8 NUMBER INPUT INTERFACE

Special Symbols Input Interface

DIAGRAM 3-9.SPECIAL SYMBOLS INPUT INTERFACE

Chinese Input Interface

DIAGRAM 3-10.CHINESE INPUT INTERFACES.

3.8. POWER ON/OFF

3.8.1. POWER ON

NVR installed correctly, switch on with power light is on, NVR will boot up automatically. Different model have different boot up status, please refer to the Front-panel Introduction.

NVR will detect the hardware when power on, the process will last 20 seconds more or less. After the detection, NVR make a “Buzzing” sound and enter into a multi-screen live view, user can operate now. Please refer to XXX. Main Menu Introduction and Other Introduction.

If recording time contain power up time, NVR will automatically start timing recording when power on .

DIAGRAM 3-4 LIVE VIEW

⚠ Note: Power supply has to match with NVR, any other substitutes are not allowed.

3.8.2. POWER OFF

Hold down on-off key to turn off device.

【Main Menu】→【Power off】→【Power off】.

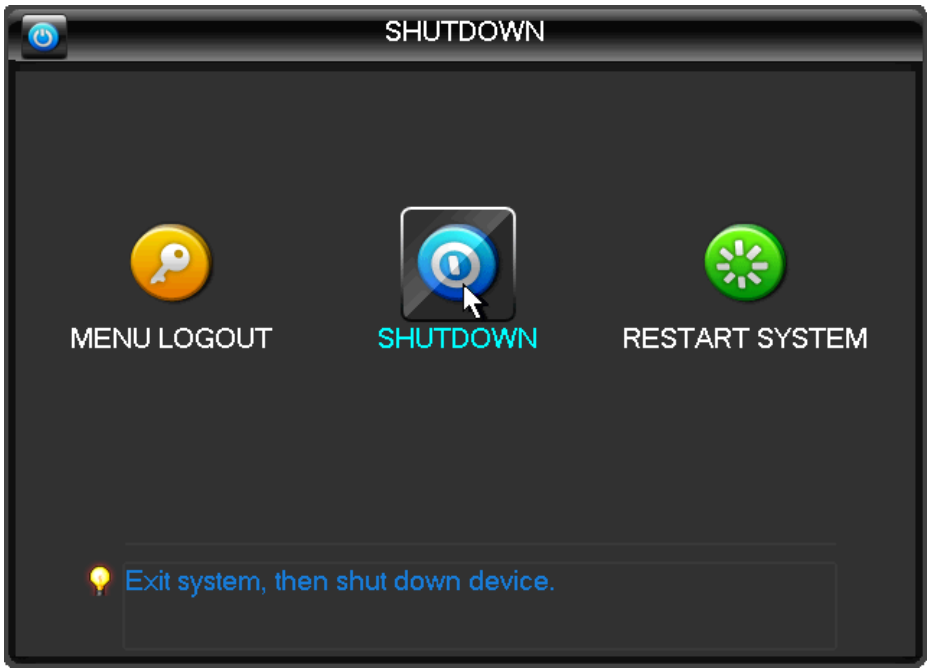


DIAGRAM 3-5 TURN OFF DEVICE

Note: turn off device and switch off power when changing HDD.

3.8.3. OUTAGE RECOVERY

Reboot after an outage or forceful shutdown, NVR will save the record before outage and return to normal operation mode.

3.9. ICON

3.9.1. STATUS ICONS

: Record

: Video loss

: Motion detection

: Channel lock

: Allows screen to switch polling.

3.9.2. OPERATION ICON

: Not Selected

: Selected

: Down Menu

: Confirm revise/get into menu.

: Cancel revise /cancel get into menu

: Set parameters

: Save parameters

: Restore factory settings, return to the last set of parameters after the modified parameters,

: Apply current set to the system.

: Copy current set to other channels.

: Enter the configuration menu.

: Config alarm, video detection trigger’s processing

3.10. LIVE VIEW

Power on NVR and entry into live view mode: there are date, time, channel names icons which indicate recording and alarm status display on screen.
Switch display screens by the front panel, remote control or mouse control.

When enable the screen message for external alarm, video loss, masking, motion detection, network and IP conflict alarm, the below interface would popup when those alarm occur. Shows as Diagram 3-6 Alarm Statuses:

DIAGRAM 3-6 ALARM STATUSES

4. OPERATION GUIDE

4.1. RIGHT BUTTON MANU

Click the right mouse button after booting into the real-time browser interface, action menu pop-up, shows as Diagram 4-1 Right button menu.

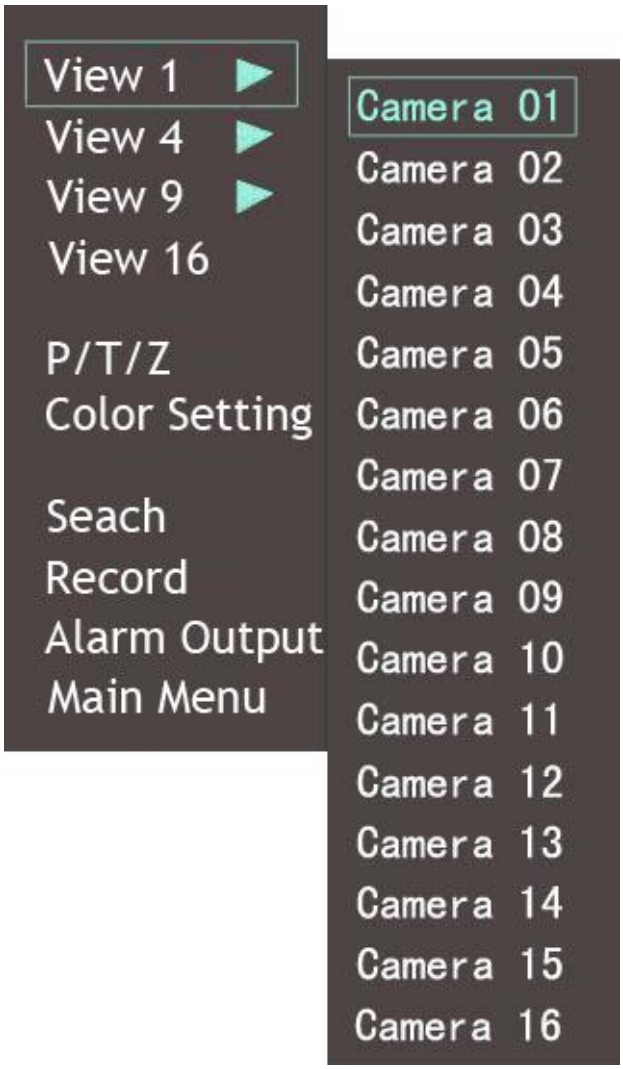


DIAGRAM 4-1 RIGHT BUTTON MENU

4.1.1. SCREEN SWITCHING

Max 16 channel in one screen, user can choose single, four, nine and sixteen channel.

4.1.2. PTZ CONTROL

Get into Output →
P/T/Z, Set PTZ protocol, baud rate, address bits, PTZ can work, for details refer to chapter 6.4.

4.1.3. IMAGE

Adjust the specified screen (single screen) image color hue, brightness, contrast, saturation, gain and white-level parameters set two time periods according to the local environment difference between day and night for each adjustment period set, the device will automatically switch to the best video quality . As shown in Diagram 4-2 Image Color.

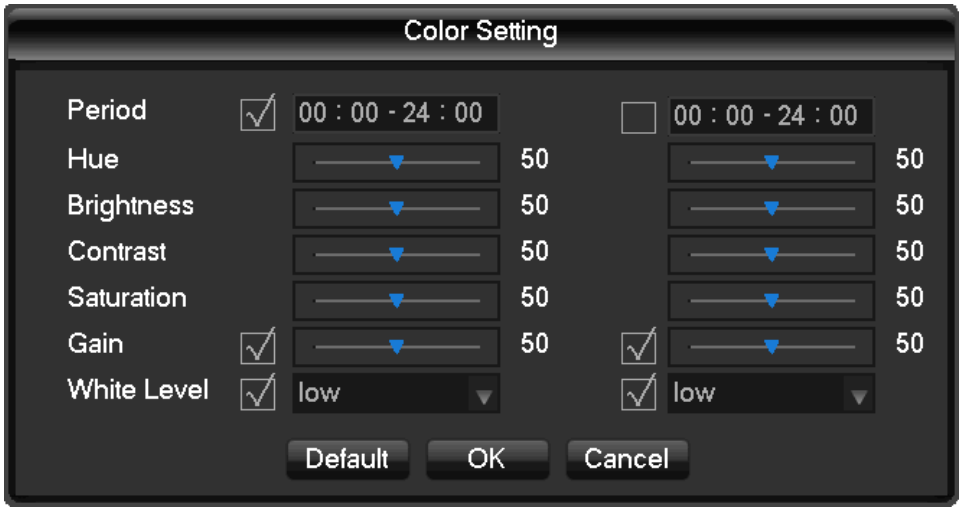


DIAGRAM 4-2 IMAGE COLOR

【Period】Two periods can be set according to ambient light during the day and night, device will automatically switch configuration time. Need to select the Enable box.

【Hue】Adjust according to image color cast

【Brightness】Visual image brightness, according to the environment, reduces or increases the brightness of the image brightness to make the image relatively clear.

【Contrast】Adjust image of black and white in proportion, the greater ratio, the brighter image.

【Saturation】Image color purity, the greater value, the more colorful images.

【Gain】Enlarge the image signal to improve signal quality.

【White Level】Change the white level reference value, to improve the brightness of the image display.

⚠ Note: Different mode different function

4.1.4. RECORDING SEARCH

Refer to 4.3 recording search.

4.1.5. MANAUAL RECORDING

Remark: manual user must have "RECORD" right

In live view screen, click on 【Manual Record】, or press the 【video】 key on remote control into manual recording interface, as shown in Diagram 4-3 Recoding Control.

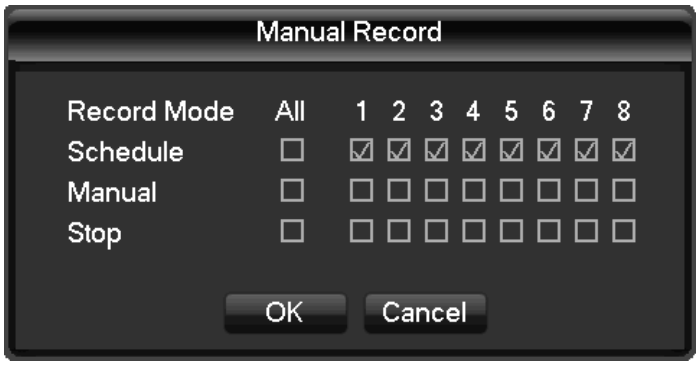


DIAGRAM 4-3 RECODING CONTROL

【Manual】The highest priority, no matter what the current status of each channel, the corresponding channels will make common recording when press "Manual" button;

【Schedule】Record according to recording type in recoding set. (Common motion Detection and alarm);

【Stop】Stop all channel recording.

To change record status of one channel, firstly check the recording status of the channel is selected non-selected (non-selected indicates that the channel is not recording; selected indicates the channel in recording mode).Then use mouse to click, or use【◀】or【▶】arrow keys move the active box to the channel, then use 【▲】or【▼】arrow keys or corresponding number key to switch the channel recording status.

⚠ Note: All selected can change record status for all channels

4.1.6. ALARM OUTPUT

Refer to chapter 4.6.2 alarm output

4.1.7. MAIN MENU

Click the【Main Menu】, input user name and password, click【OK】to enter the system menu. As shown in Diagram 4-4 system

DIAGRAM 4-4 SYSTEM LOGIN

Default users:

User Type	Name	Default Password
Administrator	admin	123456
User	user	123456
Hidden	default	default

FORM 4-1 DEFAULT USERS

Note:

Password security: occur alarm after three time's wrong input and system lockout in 30 minutes after 5 unsuccessful login. For security consideration, please modify the default password. For information on how to add groups, users and modify users information, please refer chapter 4.4.5 Uses Management, Click 123 to toggle the character input method in mouse mode.

4.2. MAIN MENU INTRODUCTION

The main menu as shown, there are search, configuration , storage, output, maintain and shutdown .

DIAGRAM 4-5 SYSTEM MANU

【Search】Search recoding by type, channel, time and playback.

【Configuration】recording, motion detection, abnormal, alarm, system, network and user management configurations.

【Storage】HDD management and backup management.

【Output】PTZ, alarm output, serial and output mode configuration.

【Maintain】to display the system log information, version information, stream statistics, and online user and set the factory default, automatic maintenance.

【Shutdown】Log off the user menu, turn off the machine, restart the system, and switch user and other operations.

4.3. SEARCH

In real-time monitoring screen, click the right mouse button, click 【search】, or enter video playback via main menu interface, as shown in Diagram 4-6 Record Search.

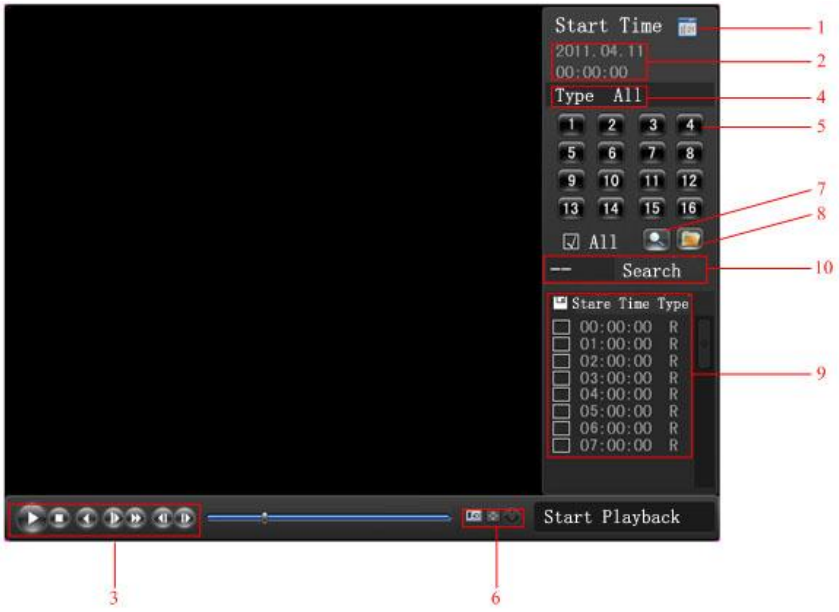


DIAGRAM 4-6 RECORD SEARCH

Index	Type	Description
1	Calendar	Click the calendar icon to show the record list (only the dates with green background take records.）and then click a specific date to call the record. The list will be upgraded automatically.
2	Time	Select record search start and end time.
3	Play	Playback control: stop/play, pause, fast, slow, previous/next frame in pause.
4	Recoding mode	Choose searched recording mode, including whole, outside alarm, motive detection, whole alarm recording.
5	Channel	Choose searched channel
6	Play	Choose to play the previous or next file; choose to play the previous or next channel.
7	Search	Choose the start time, channel, and click “search” will display results in the list.
8	Backup	Tick “”to choose backup file in file list box, click backup button， cancel backup file ---click “ √ ”from backup menu “ √ ”.
9	Record List	128 video records shows in searching list choose file and press enter or double click mouse to view record.

		File type: R—normal record, A—alarm record; M—motion detection record.
10	Channel	Choose the channel to playback.

FORM 4-2 RECORD SEARCH INTERFACE DESCRIPTION

Playback Control:

Key	Description	Remark
Video playback : Fast-forward button ⏩	Under playback mode, pressing this key, you can get a variety of fast cycle switching speeds; fast-forward button can be used as slow-release button reverse switch key.	Actual play rate based on version
Video playback : Slow key ◀	Under playback mode, pressing this key, switch cyclically support a variety of slow-release rate, slow release button can be used as fast-forward button reverse switch key.	
Play/pause►/ ⏸	Play/pause switch when slow-play	
Backward: Backward key ◀	Single left click backward key	To play backwards and single click again to stop back run under common playback Rewind or single-frame playback, press the play button ►/ ⏸ to enter the normal playback .
Manual single frame playback	single frame playback by clicking ◀| and |▶ when common playback pause	

FORM 4-3 PLAYBACK CONTROL

Remark ：

1, the player playback control bar show file playback speed, channel, time, playback progress and other information.

2, playback speed and rewind function are related to NVR version, and please prompt on the player panel shall prevail.

4.4. CONFIGURATION

User can get into configuration through main menu; Function of system , channel, network, alarm, account and abnormity as shown in Diagram 4-7 Configuration.

DIAGRAM 4-7 CONFIGURATION

4.4.1. SYSTEM

Get into system configuration:

DIAGRAM 4-8 SYSTEM CONFIGURATION

【Time】： Set the current time

Note: Click to save the time modification.

【Date Format】: To modify the date display format

【Daylight Saving Time (DST) 】: Click “DST” to enable the function, and enter the local DST starting and ending time.

【Date Separator】: To select the separator for date

【Time Format】:24 hr or 12 hr display mode

【Language】: language selections vary by different model）.

【Full HDD】： When HDD is full, there are two options: “Overwrite” or “Stop recording”. If you select “Overwrite”, the NVR will overwrite the earliest recorded files and continue recording as all HDD in NVR are full. If you select the “Stop recording” option the NVR will stop recording when it reaches capacity.

【Pack Duration】:To set time length for each record, default is 60 minutes, the maximum is 120 minutes.

【NVR No.】： Number more than one NVR, click “Ad” button on remote control and input a number to select the corresponding NVR to operate.

【Video Standard】standard: PAL/NTSC（match camera model）.

【Auto Logout】： This ranges from 0-60 minutes. 0 means no setting. NVR will automatically let user quit after standby time’s vacancy.

4.4.2. CHANNEL CONFIGURATION

network channel configuration

Enter to the "Record" interface, as Diagram 4.9::

DIAGRAM 4-9 RECODING CONFIGURATION-BASICALLY CONFIGURATION

【Channel】the channel selection

【Protocal】only supports ONVIF protocol.

[The Device IP] access IPC device IP.

[Port] to access IPC devices ONVIF port.

⚠ Note：The device IP, protocol, and port can be added via searching out the equipment!

【User name and password access IPC equipment user name and password.

[The detection equipment] detection access the IPC device is normally connected.

【The equipment channel number] access the IPC device channel number.

[Search] Click [Search] to enter the Search menu as shown in Figure 4.10.

Select the the ONVIF type, and then search network equipment, Double-click the searched equipment to set the current network channel's the protocol type and device IP. (NVR, and IP camera must be the same network segment, they will not support cross-network segment)

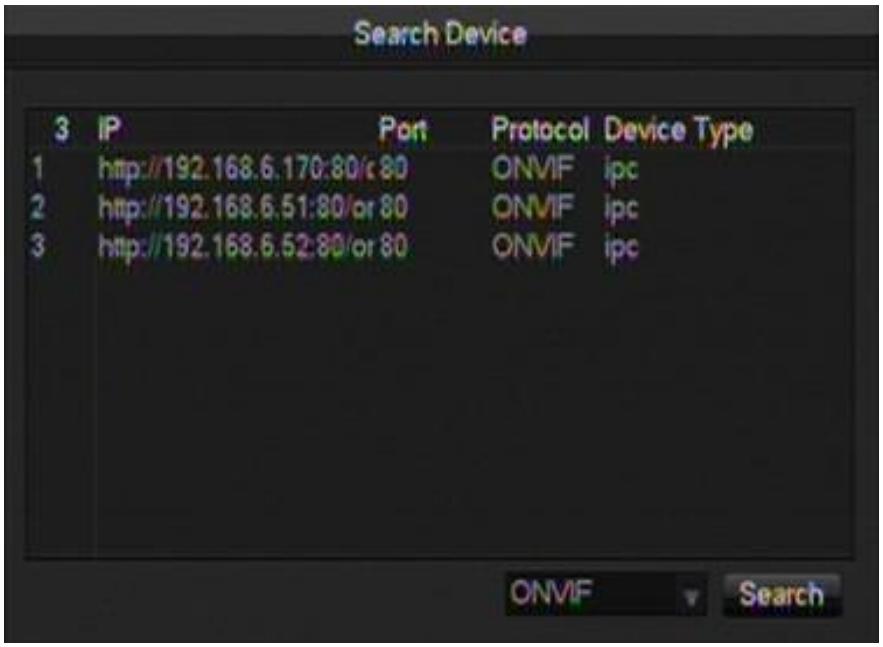


DIAGRAM 4-10 MORE CONFIGURATIONS

【Channel switch] to open or close the channel.

Recording plan:

Recording Configuration-recording plan: Diagram 4-11 Recording Configuration-recording plan

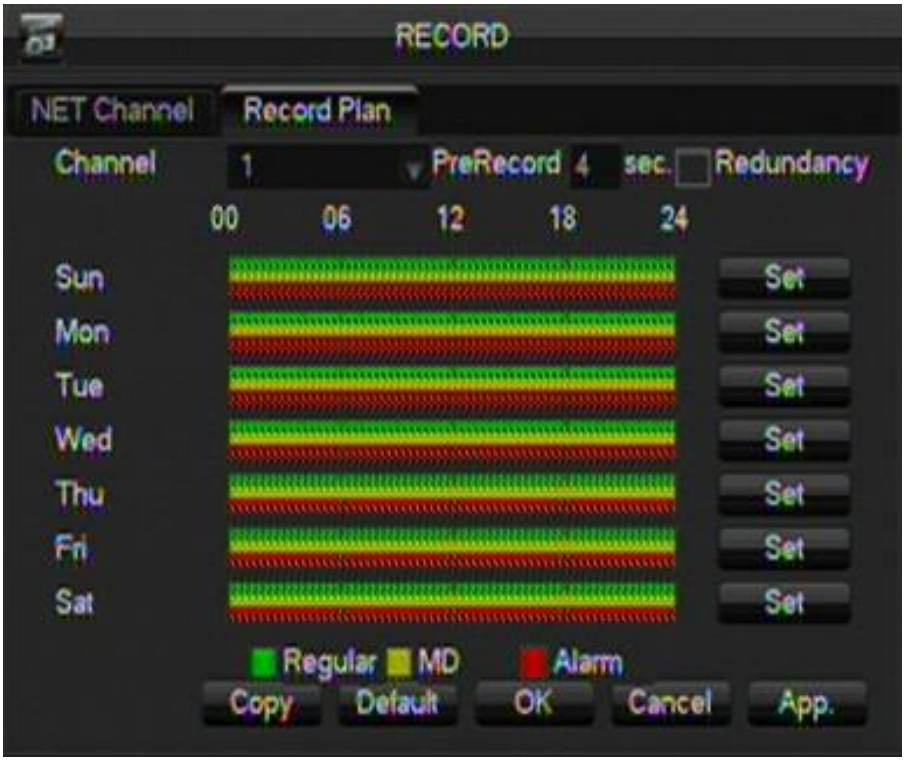


DIAGRAM 4-11 RECORDING CONFIGURATION-RECORDING PLAN

【Channel】： To select channel. Green, yellow and red refer to the normal, MD and alarm recording type. Modify it in【Edit】.

【Copy】copy one channel's configuration to other

【Edit】edit plan interface Diagram 4-12 Edit Plan:

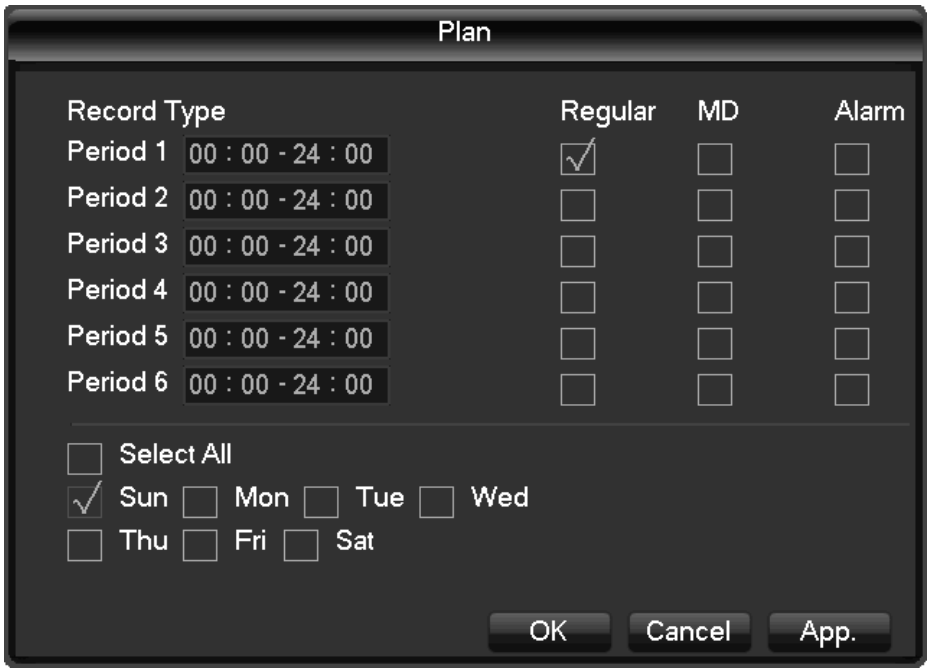


DIAGRAM 4-12 EDIT PLAN

【Time 】recording time, 6 recording time zone can be set every day

【Normal】for normal record

【Moving Detection】For Moving detection

【Alarm】For alarm record

4.4.3. NETWORK

Set the NVR network parameters in “Network” interface. The default IP address is 192.168.1.88

Base setting

Base setting interface 4-13:

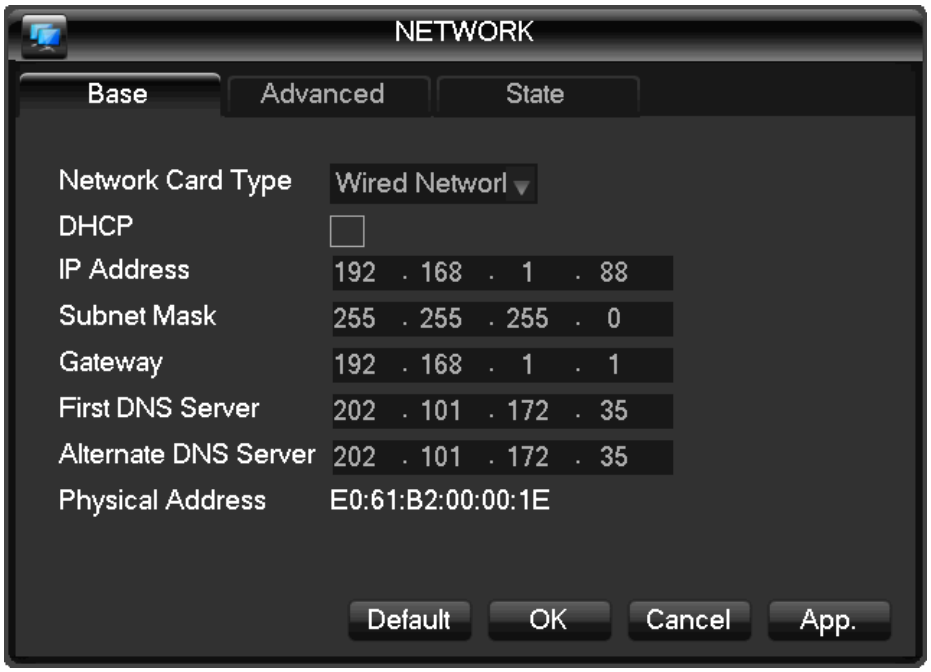


DIAGRAM 4-13 NETWORK CONFIGURATION-BASE CONFIGURATIONS

【DHCP】Enable the NVR to obtain an IP address automatically. If this is enabled, the NVR will reboot and search for a DHCP server, and then assign a dynamic IP address. The dynamic IP address will be displayed in the menu. Enter a static IP address if there is no DHCP service available. If you are using the advanced feature PPPoE, then the IP/mask/gateway and DHCP are unable to be changed.

【IP Address】use（▲▼）or input numbers to modify IP, then set 【subnet mask】 and 【default gateway】 for this IP.

【First DNS Server】DNS server IP

【Alternate DNS Server】DNS alternate IP

【Physical Address】physical address of current net port

Advanced

Advance interface (Diagram 4-14 Network Configuration-Advanced):

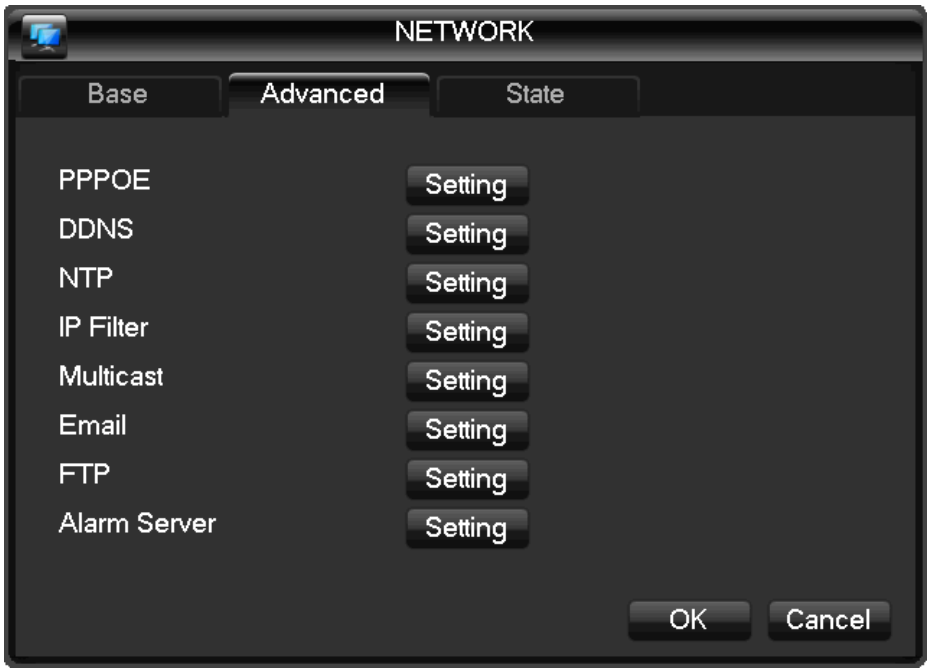


DIAGRAM 4-14 NETWORK CONFIGURATION-ADVANCED

【PPPOE】enable PPPOE

Input PPPOE username and password provided by ISP.

Operation: Using this feature, the NVR will automatically obtain a public IP address from your ISP. You can then visit the web interface of the NVR by typing this IP into Internet Explorer.

【DDNS】enable the NVR to update a DDNS hostname, which run on a fixed IP address web client.

Select DDNS type（supports various DDNS currently, include CN99 DDNS, NO-IP DDNS, Private DDNS and Dyndns DDNS, Sysdns DDNS with many other compatible）and enable the function; input the update server IP, port, DNS, username and password. Once setup, you can then login via the Web client by using this DNS in Internet Explorer.

Private DDNS is available for use with a specific DDNS server and client software.

Details refer to 6.1 DDNS function

【NTP】on/off NTP. Network Time Protocol – allows the NVR to sync with SNTP time server automatically.

Host IP: input IP of NTP server

Port：This SNTP support TCP only, the unique port is 123.

Update cycle: time interval between 1 min and 65535 min.

Time zone: London: GMT+0, Berlin: GMT +1, Cairo: GMT +2, Moscow: GMT +3, New Delhi: GMT +5, Bangkok: GMT +7, Hong Kong/Peking: GMT +8, Tokyo: GMT +9, Sydney: GMT +10, Hawaii standard time(HST): GMT-10, Alaska standard time(AKST): GMT-9, Pacific standard time (PST): GMT-8, Mountain standard time(MST): GMT-7, Central standard time(CST): GMT-6, Eastern standard time(EST): GMT-5, Atlantic standard time(AST): GMT-4, Brazil: GMT-3, middle Atlantic: GMT-2.

【IP Filter】NVR authority management, if you enable the white list, only the NVR in IP list is allowed to connect. This system supports a max of 64 IPs.

【On-line User】range: 0-10, 0 indicates that no connections are allowed.

【Network monitoring connections】0-32 should be proper. Need Check first then browse real time video on the network, the number of connections depending on network bandwidth, the greater the number, the greater the network load, the impact of video playback smooth

The automatic setting adjusts these settings based on available network resources.

【Speedy online download】0-8 should be proper.

【Network Transmission QOS】Fluency priority or Picture Quality priority or self-adaption

Y, according to the setting, the network automatically adjusts the stream.

【Speedy online download】if enabled, speed is 1.5-2 times to normal speed.

【HTTP】default: 80

【TCP】default: 8000, variable

【UDP】default: 8001, variable

【UPnP】Protocol on the router automatically open port mapping, make sure UPnP feature is enabled on the router, details refer to chapter 6.2.1 UPnP

【Multicast】tick 'Multicast' and set a group in 'Set', IP should be limited as follow picture, port no limit.

【Email】Set the sender mailbox SMTP server IP address, port, username, password and sender's mailbox, mail SSL Encryption.

Email title support Chinese, English and Arabic numerals input, Max input 32 characters. Max support 3 Receive Addresses and SSL Encryption Mailbox.

【FTP】: Tick "FTP" and click "Set"

Set FTP server IP address, port and destination folder. System will create folders by IP, time and channel if there is no remote folder specified.

FTP username and password

Set a maximum file size, channel, time, type and etc.

Set FTP file length. Upload the whole record if the file length is smaller than setting; leave out the exceed part if the file length is exceed the setting; 0 refers to uploading the entire record in any condition.

Set up to two time periods and choose from 3 different record types for channels.

【Alarm Center】reserved interface

Network status

Display the current DHCP PPPoE and IP.

4.4.4. ALARM CONFIGURATION

Local alarm

Local Alarm interface (Diagram 4-15 Alarm Configurations):

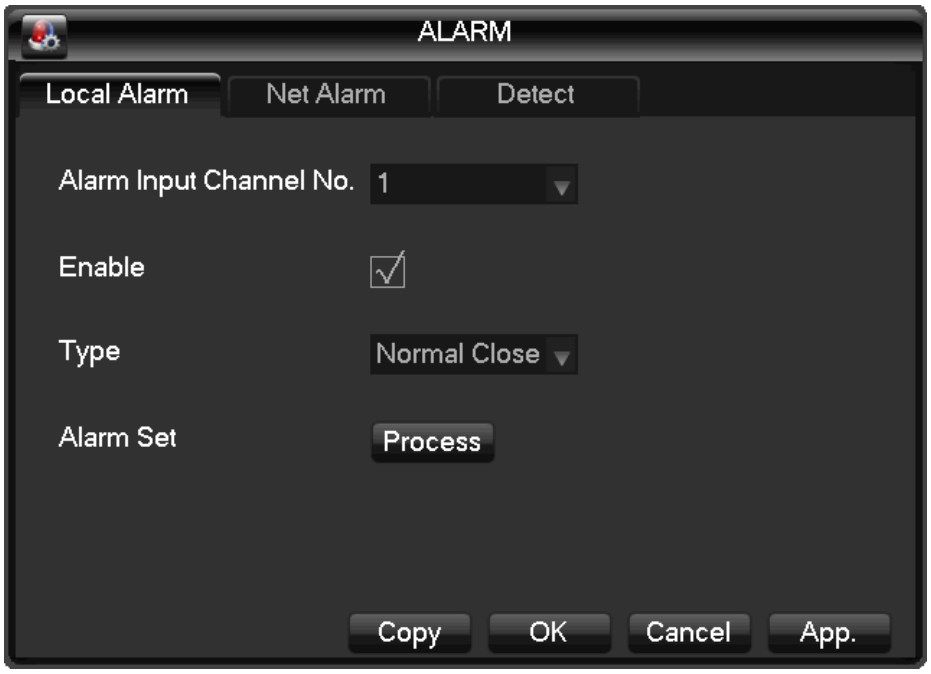


DIAGRAM 4-15 ALARM CONFIGURATIONS

【Alarm Input Channel No.】select the alarm input channel

【Enable】the specified alarm in /out

【Type】select the alarm circuit type.

【Copy】copy the configuration to another channel

【Process Mode】enter alarm linkage interface Diagram 4-16 Alarm Configuration-local alarm –Process Mode-Period:

DIAGRAM 4-16 ALARM CONFIGURATION-LOCAL ALARM –PROCESS MODE-PERIOD

【Period】 set alarm active period

DIAGRAM 4-17 ALARM CONFIGURATION-LOCAL ALARM –PROCESS MODE-LINKAGE

【Linkage】 on/off 【Record Channel】, 【PTZ】, 【Tour】, 【Snapshot】 linkage and select channel.

DIAGRAM 4-18 ALARM CONFIGURATION-LOCAL ALARM –PROCESS MODE-ABNORMITY

【Abnormity】: enable or disable 【Alarm Out】, 【Show Message】, 【Send Email】 and 【Buzzing】

Time delay for alarm cancel is 10-300s

Notice: some models have no LOCAL ALARM Function; please refer to the Product Specification.

Video detection

【motion detection】motion detection and alarm

【zone setting】22*18 =396 zones mask

【Sensibility】6 grades

【management】as same as local alarm

【preview】alarm preview

【video lose】detect video loses and alarm

【management】as same as local alarm

【preview】alarm preview

4.4.5. USER MANAGEMENT

Note:

Group and user names can be from 1-6 characters in length. Valid characters include letter, numbers, and limited symbols: underline, subtraction sign, dot, you may not use a space as a leading or ending character.

There is no limit to the number of groups or users. By default there are two different group levels: admin and user.

User management determined upon two levels: the group and the user level.

Group and user names cannot be duplicated, and each user can only belong to one group.

User management interface as Diagram 4-19 User Management:

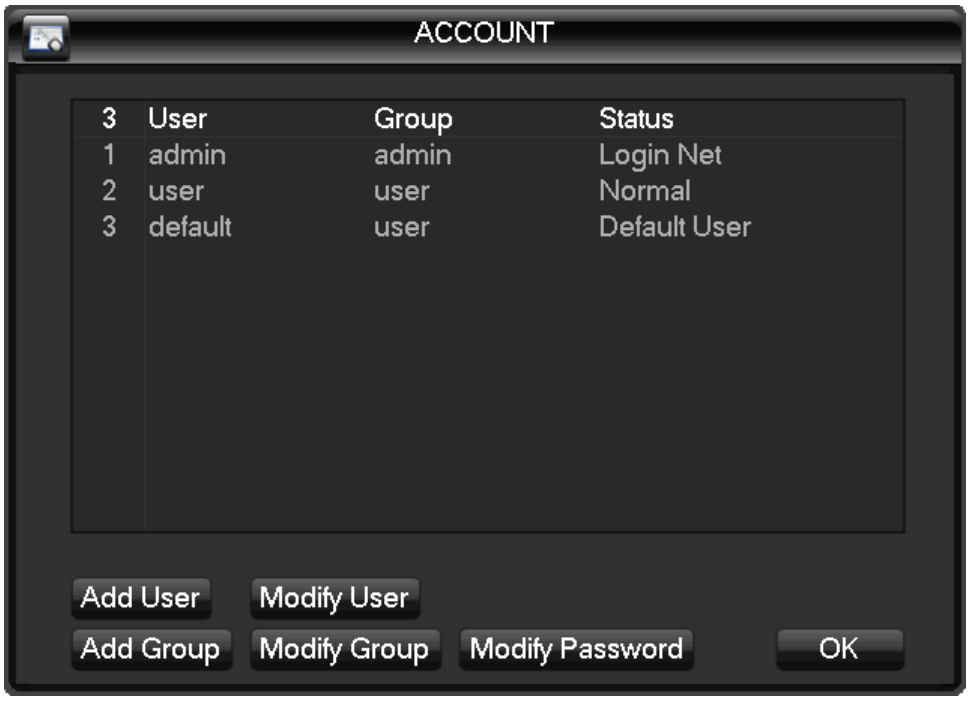


DIAGRAM 4-19 USER MANAGEMENT

【Add users】add group member information and set authorities.

Default users are: “admin”, “user” and hidden “default”, the password of first two username is 123456. “admin” has advanced authorities; “user” only has surveillance and playback authority.

Hidden default: operate in password-less login mode, cannot delete, NVR login in this name automatically if “no user login”， user can revise limits of power then operate some without login.

Enter【Add users】input username, password and select group and reusable options. Reusable allows the account to be used by multiple logins.

Users can only belong to one group. User rights cannot exceed group rights.

【Modify users】modify existing group member information and authority.

【Add group】add group and set group authorities

Set a group and authorize 60 items including control panel, shut down, live view、 playback, record, record backup, PTZ control, account, system information, alarm in /out setting, system config, search log, log delete, upgrade, operation authority, etc.

【Modify group】modify existing group information.

【Modify Password】change password

Select a username input the old password and new password twice.

Click【Save】to confirm

Password can be in 1-6 numbers, letters or symbol; blank in beginning and end is invalid.

The account with management authority could change others' password.

4.4.6. ABNOMITY

Abnormity interface as Diagram 4-20:

DIAGRAM 4-20 ABNORMITY

【No Disk】alarm when HDD is not present or can not be detected.

【Process】includes:【Alarm Output】, 【Display On Screen】 and 【Send Email】.

【Disk No Space】alarm when hard disk capacity is lower than setting.

【Process Mode】is same as 【No Disk】's 【Process Mode】

【Network Failure】alarm when network is not connected.

【Process Mode】includes【Alarm Output】, 【Display On Screen】 and 【Send Email】and recording linkage.

【IP Conflict】alarm when IP address conflict.

【Process Mode】 is same as 【No Disk】's 【Process Mode】

【Disk Error】 alarm when there is error in reading and writing hard disk.
【Process Mode】 is same as 【No Disk】's

【Process Mode】is same as 【No Disk】's 【Process Mode】

4.5. STORAGE

4.5.1. HDD MANAGEMENT

Maintain and manage local HDD: Diagram 4-21 Storage Management

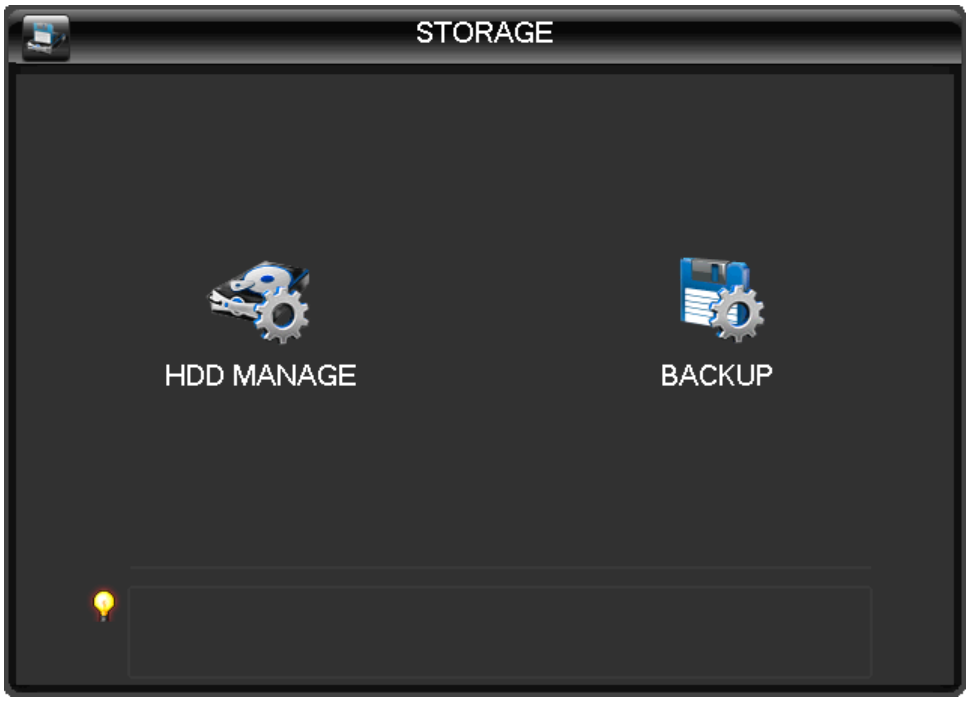


DIAGRAM 4-21 STORAGE MANAGEMENT

Base Configuration

"Base Config" as Diagram 4-22 HDD management –base configuration, shows NVR storage capacity, available space and working status.

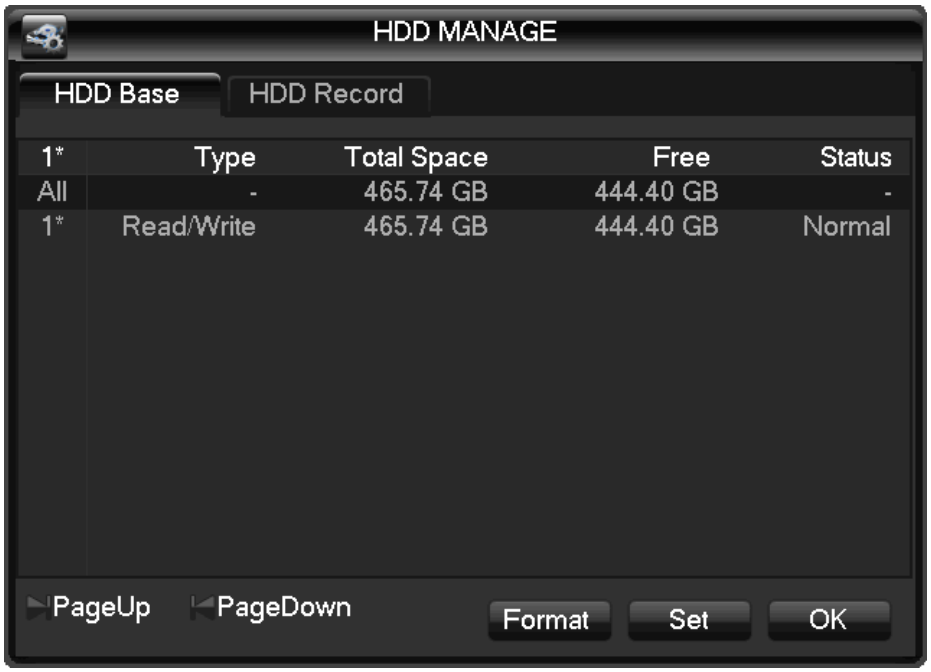


DIAGRAM 4-22 HDD MANAGEMENT –BASE CONFIGURATION

【Format】it is possible to format an individual HDD.

⚠ Note: Hard disk format operation result in the loss of video data

【Set】to set HDD as read-write, read only or redundancy mode. In read only mode, video data cannot be covered.

HDD S.M.A.R.T intelligent detection

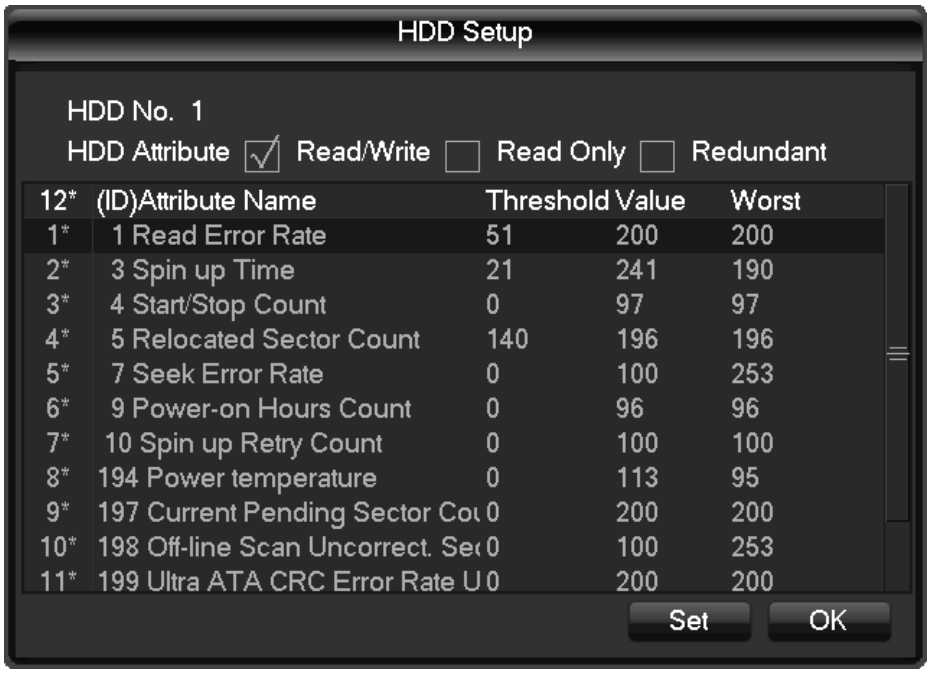

HDD Setup
HDD No. 1
HDD Attribute Read/Write Read Only Redundant
12* (ID)Attribute Name Threshold Value Worst
1* 1 Read Error Rate 51 200 200
2* 3 Spin up Time 21 241 190
3* 4 Start/Stop Count 0 97 97
4* 5 Relocated Sector Count 140 196 196
5* 7 Seek Error Rate 0 100 253
6* 9 Power-on Hours Count 0 96 96
7* 10 Spin up Retry Count 0 100 100
8* 194 Power temperature 0 113 95
9* 197 Current Pending Sector Cou 0 200 200
10* 198 Off-line Scan Uncorrect. Se(0 100 253
11* 199 Ultra ATA CRC Error Rate U 0 200 200
Set
OK

DIAGRAM 4-23 S.M.A.R.T TECHNOLOGY

Record

Record menu, as Diagram 4-24 HDD Management -record, shows start-stop time.

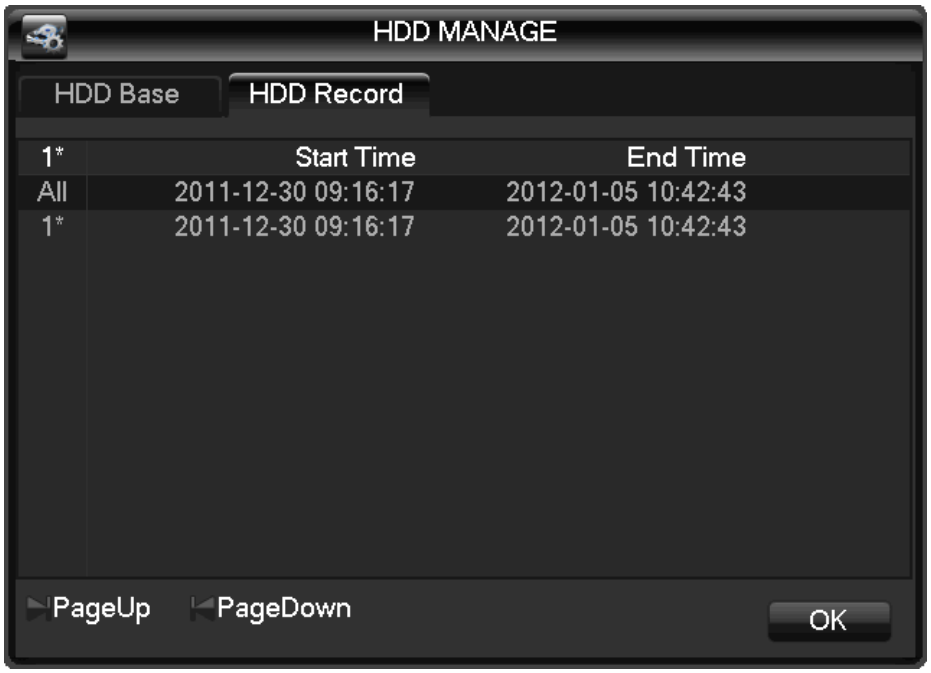


DIAGRAM 4-24 HDD MANAGEMENT -RECORD

4.5.2. RECORD BACKUP

Connect an External USB device with the USB port to backup in the “Record Backup” menu (interface Diagram 4-25 Record Backup).

BACKUP
1 Name(Type) Free/Total Device Status
1 sdb1(USB DISK) 0.00 KB/7.20 GB Ready
PageUp PageDown Select/Cancel backup device or file.
Detect Backup Erase Stop
OK

DIAGRAM 4-25 RECORD BACKUP

【Detect】: Identify external USB device and display the device information.

【Backup】: tick the external device and click【Backup】to enter the backup menu (as Diagram 4-26 Backup).

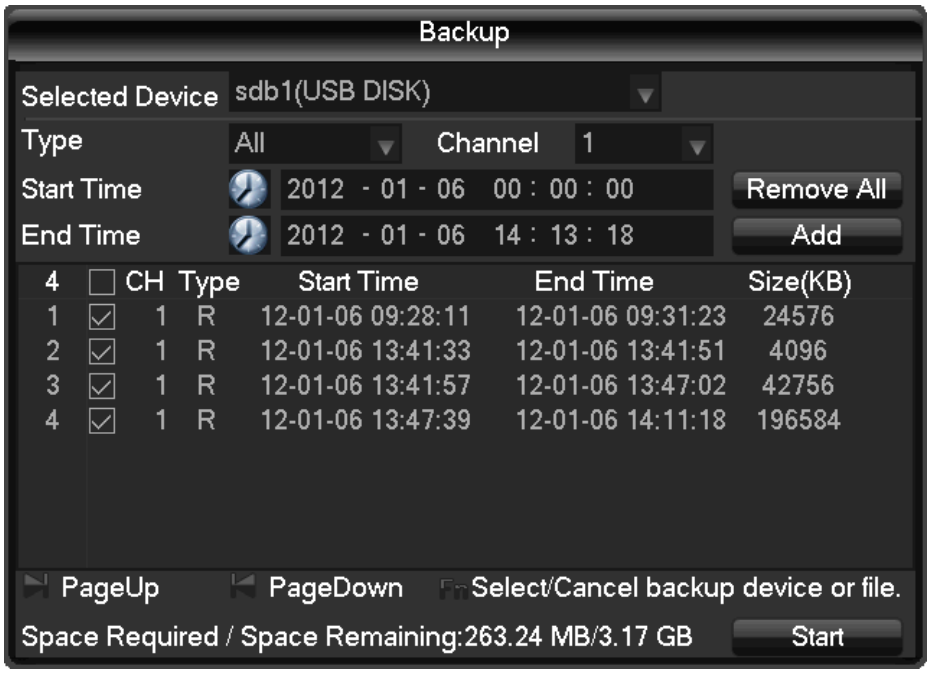

Backup
Selected Device sdb1(USB DISK)
Type All Channel 1
Start Time 2012 - 01 - 06 00 : 00 : 00
End Time 2012 - 01 - 06 14 : 13 : 18
Remove All
Add
4 CH Type Start Time End Time Size(KB)
1 1 R 12-01-06 09:28:11 12-01-06 09:31:23 24576
2 1 R 12-01-06 13:41:33 12-01-06 13:41:51 4096
3 1 R 12-01-06 13:41:57 12-01-06 13:47:02 42756
4 1 R 12-01-06 13:47:39 12-01-06 14:11:18 196584
PageUp PageDown Select/Cancel backup device or file.
Space Required / Space Remaining:263.24 MB/3.17 GB
Start

DIAGRAM 4-26 BACKUP

Select the record start-stop time and click【Add】to add in list; duplicate it by inputting the start-stop time again; click【Delete】to clear the files list.

Tick the record you want and click【Start】to backup and display time remaining.

【Delete】delete all data in USB backup device

Note: USB backup carry player automatically

Note: this operation probably cause permanent data loss

4.6. OUTPUT

The following Diagram 4-27 Peripheral Management shows the peripheral management interface

DIAGRAM 4-27 PERIPHERAL MANAGEMENT

4.6.1. PTZ CONFIGURATION

4.6.2. ALARM OUTPUT

This menu manages alarm output parameters and displays the current state of Alarms (Diagram 4-28 Alarm Output).

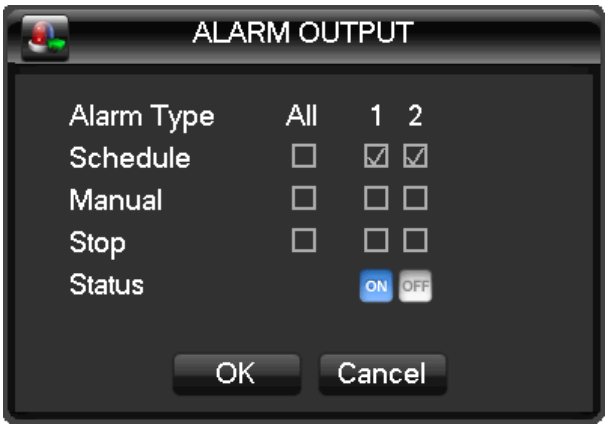


DIAGRAM 4-28 ALARM OUTPUT

【Channel】alarm port

【Auto】alarm output is determined by the alarm output menu, while in auto mode.

【Manual】 alarm output is on and the status is active.

【Close】alarm output is off and the status is inactive.

【Status】current status of alarm output

Notice: Some models have no LOCAL ALARM, please refer to the products descriptions.

4.6.3. PORT CONFIGURATION

Port Configuration interface (Diagram 4-29 Port Configurations):

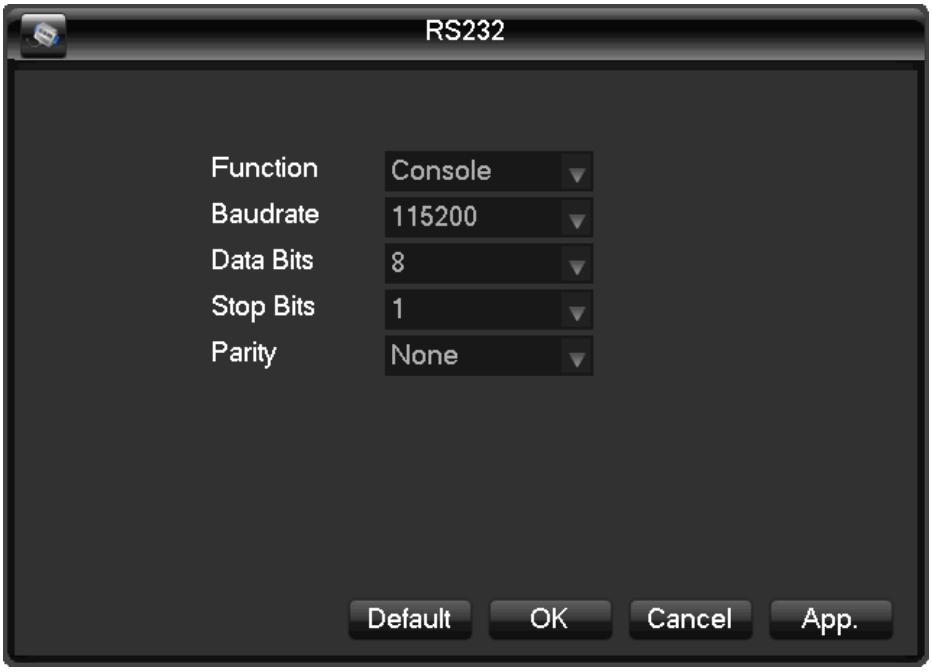


DIAGRAM 4-29 PORT CONFIGURATIONS

【Function】adjust protocol

General port: upgrade and adjust by port and software;

Keyboard: keyboard connected by port;

Transparent port: transparent transmission of data;

Protocol Port: port information overlay need to set this Agreement;

Bypassed port: connect with PC to bypass parameters;

Net keyboard: keyboard connected by net port;

PTZ matrix: control PTZ matrix

⚠ Note: Certain models are without an RS-232 port, please see Specifications.

【Baud Rate】set baud rate.

【Data Bit】default: 8

【Stop Bit】default: 1

【Confirm】default is N/A

4.6.4. DISPLAY

Display mode can set the unit's display and polling

Display Menu

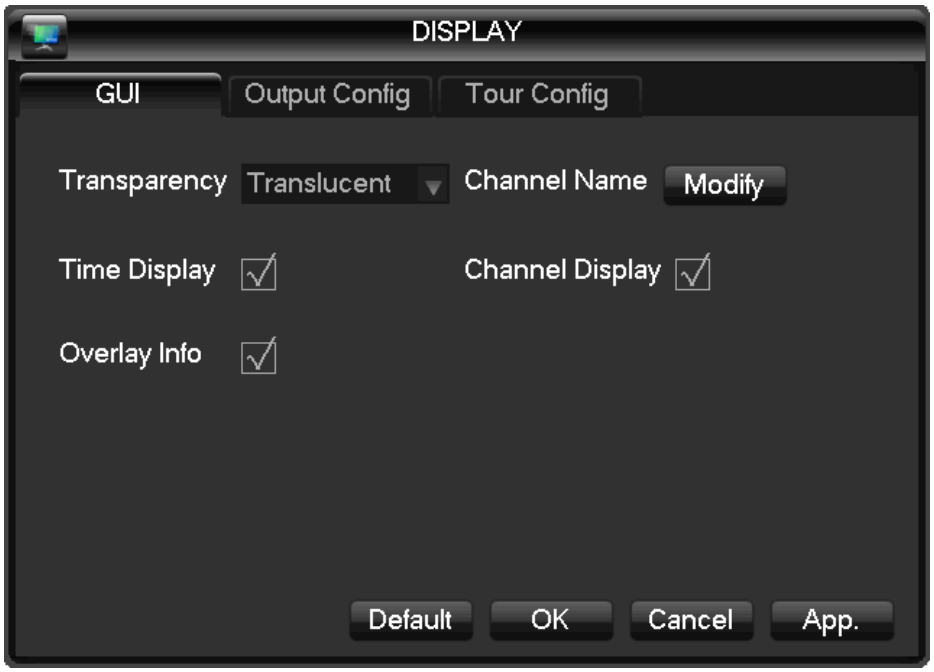


DIAGRAM 4-30 OUTPUT-MENU OUTPUT

【Transparency】: total 4 grades

【Channel Name】: to modify channel name, available options are symbols, letters, and numbers.

Note: 1) Channel name up to 48 half-width characters

2) 16 characters is suitable, otherwise some problems happen when multi-screen

【Time Display】: to choose whether time displays on screen

【Channel Display】: to choose whether channel name displays on screen

【Over Info】: to choose whether overlaying information displays on screen

Output configuration

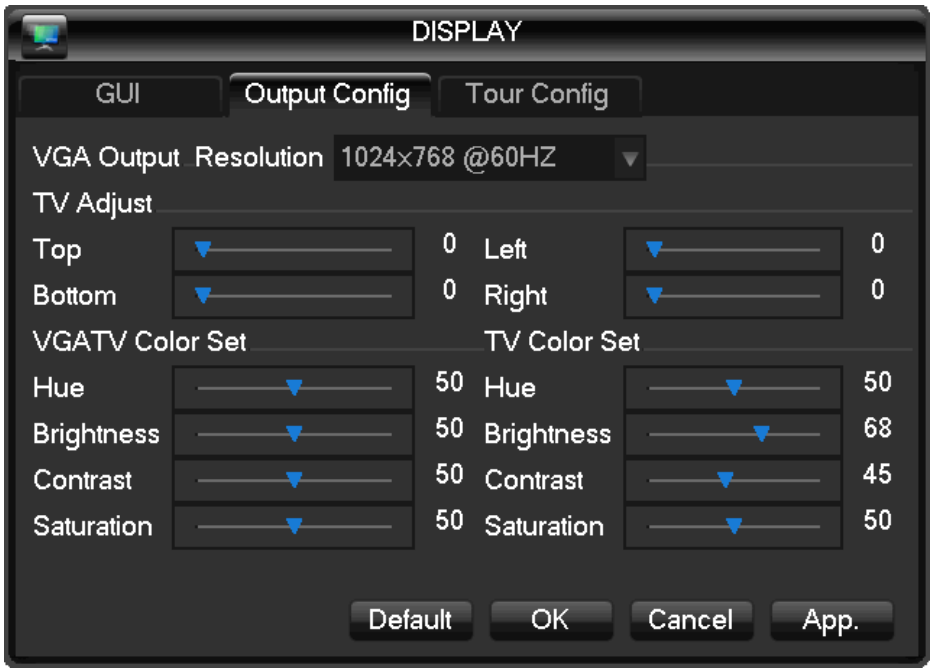


DIAGRAM 4-31 OUTPUT- OUTPUT CONFIGURATION

【VGA Output】to select VGA resolution and refresh rate, default is 1024×768@60Hz.

【TV Adjust】to adjust TV output area. Modify the image to the right size for monitor.

【VGATV Color Set】to adjust displayer's hue, brightness, contrast, saturation

【TV Color Set】to adjust monitor or TV's brightness, contrast, saturation

Tour configuration

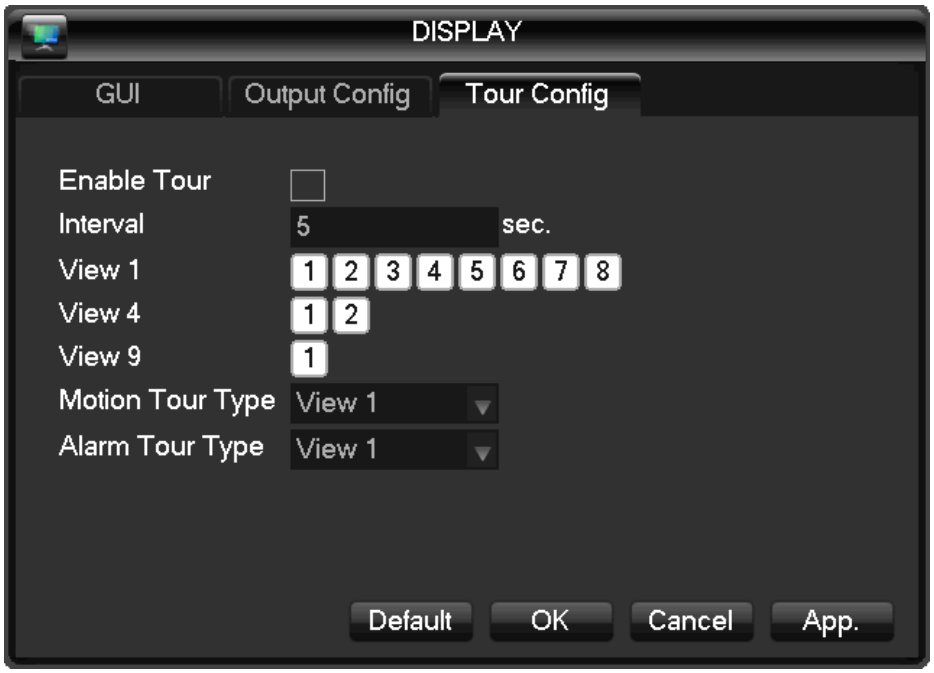


DIAGRAM 4-32 OUTPUT-TOUR

Setting tour mode and interval between rotation , the time is within 5-120s， the mode include single screen, four-, eight-, nine-, sixteen-screen.

【Motion Tour Type】: to set the motion detection tour mode

【Alarm Tour Type】: to set the alarm tour mode

⚠ Note: Shortcut Setting: click the button at the top right corner of the monitoring picture or press the Shift Key to switch, you can control the tour.

4.7. MAINTAIN

The following picture shows the maintain interface

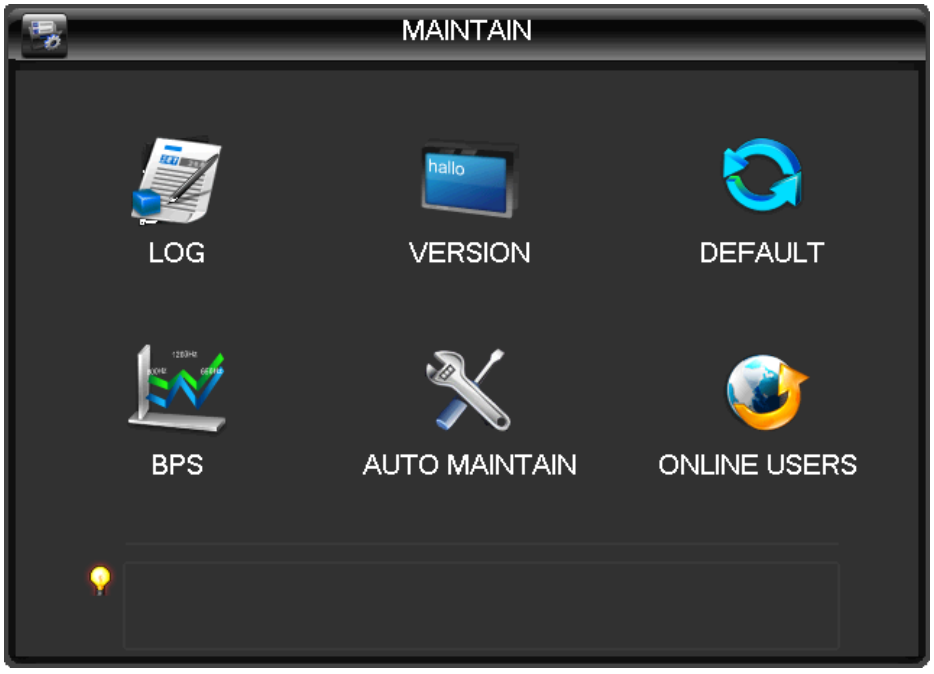


DIAGRAM 4-33 MAINTENANCE

4.7.1. LOG

【LOG】display system log information.

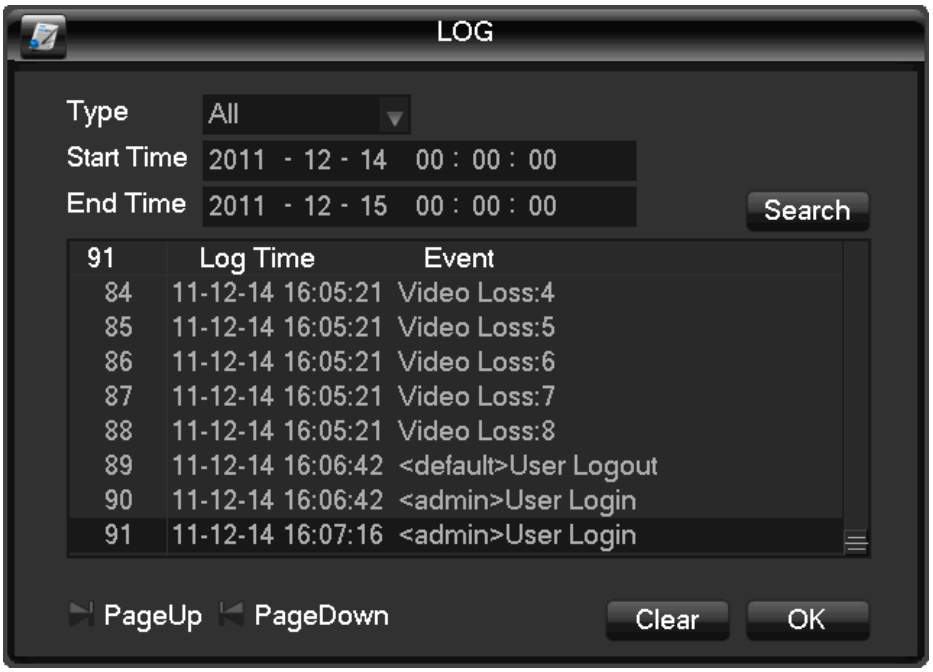


DIAGRAM 4-34 LOG

Select the type and time press the Find, the system will display the log in tabular form, you can also click the backup button to export the log backup to your computer.

Log type: system operation; configuration; data management; alarm event; recording; user management; log delete; document operation. Select the type and time to filter the log list.

Click “delete” to delete all logs.

4.7.2. VERSION

【Version】: Show features, software version etc.

【upgrade】: Connect a USB flash device which contains the upgrade firmware and click “Upgrade”.

⚠ Note： upgrade may cause the startup failure. Please operate under professional direction.

4.7.3. DEFAULT

【default】restore（items are selectable） (Diagram 4-35 Restore Default)

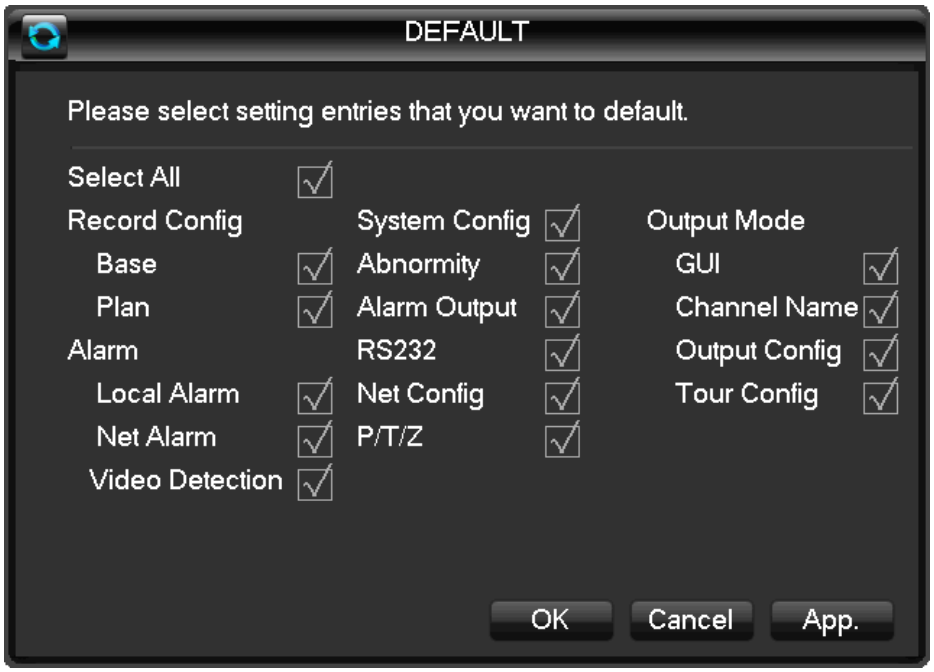


DIAGRAM 4-35 RESTORE DEFAULT

Note：Menu transparency, language, time format, video format, IP, user ID, etc are not restored.

4.7.4. BPS

【BPS】shows video's size, data rate of each channel by wave form.

Note：Estimated value just for reference

4.7.5. AUTO MAINTAIN

【Auto Maintain】set auto maintenance items.

4.7.6. ON-LINE USER

【On-line Users】check the current online user's status.

4.8. SHUTDOWN

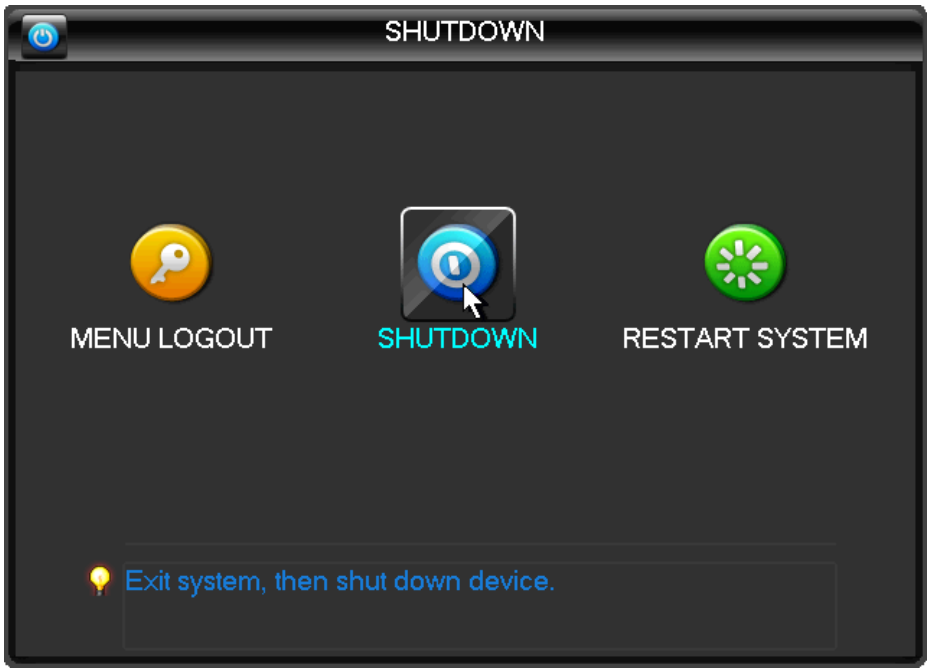


DIAGRAM 4-36 SHUTDOWNS

【Menu Logout】log out of the current user account

【Shutdown】shutdown the NVR

【Restart System】reboot the NVR

5. WEB&CLIENT

5.1. WEB OPERATION

5.1.1. NETWORK CONNECTION

H&M Series: Check network connection by LCD on front panel, “ ” refers connection error, P Series: Check B-Lamp on front panel, light indicates connection

Set IP, subnet mask and gateway for computer and NVR. Please assign the same segment IP address without router, need to set the appropriate subnet mask and gateway with router.

The detail of NVR network configuration please see【Configuration】→【Network Setting】

Ensure the IP is correct and check whether the NVR is on the network by using the Windows command “ping”.

5.1.2. ACTIVE X CONTROL SETUP & LOGIN / LOG OUT

User can remote acces to NVR by Internet Explorer, assuming you have a correct network configuration.

The following interface will popup when you access the IP address in Internet Explorer.

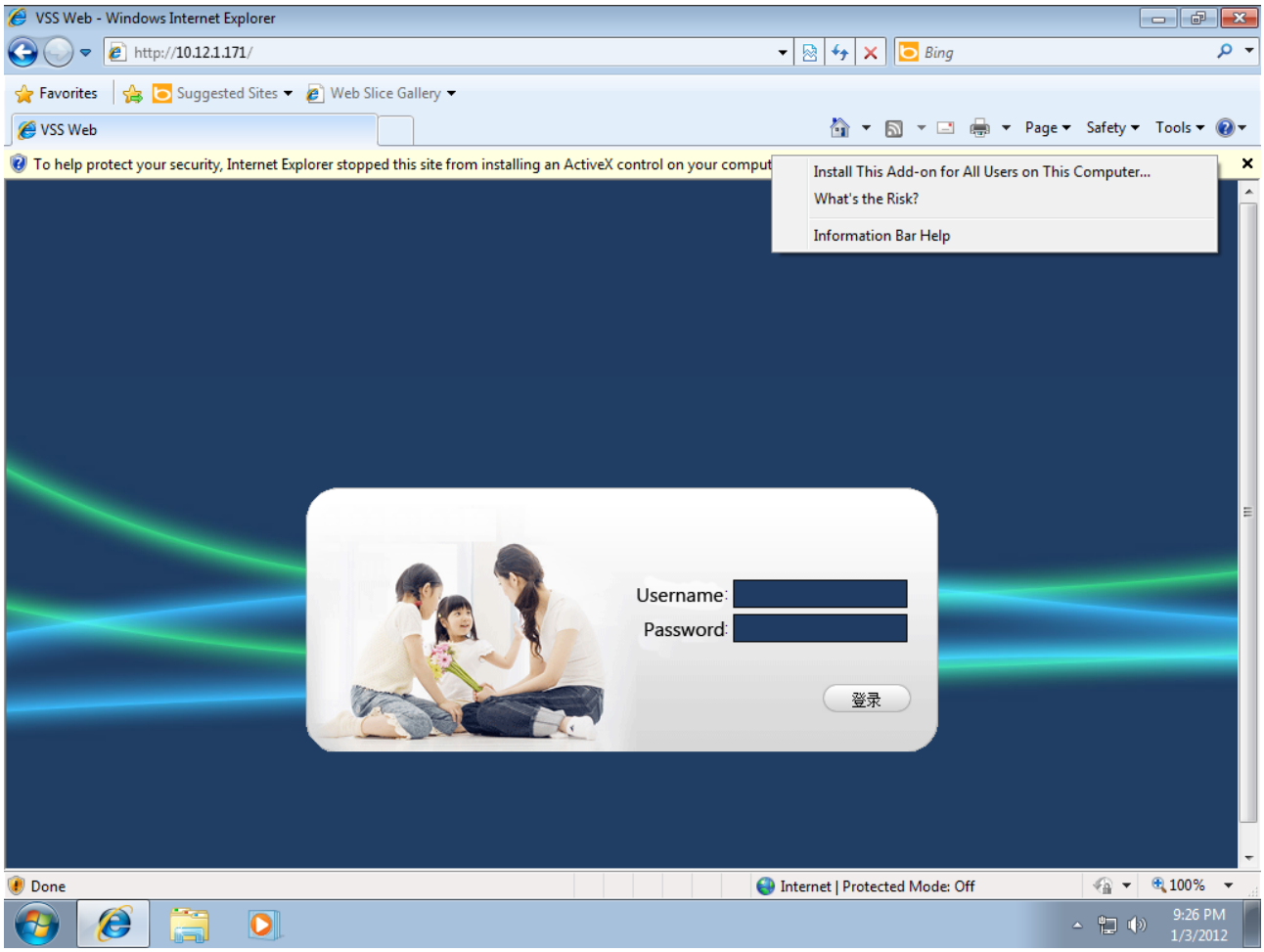


DIAGRAM 5-1 LOGIN SCREEN

Install ActiveX: Right click and choose install. If installation is blocked by Windows, please add the IP as a trusted site or lower your Internet Explorer security settings to allow this.

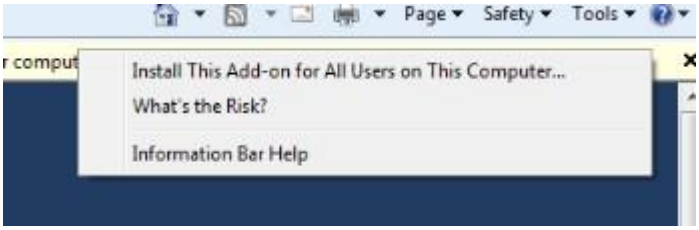


DIAGRAM 5-2 INSTALL CONTROL

The following interface will popup when you input your username, password and click “Login”.Interface like Diagram 5-3 Web Interface when user login successfully.Click “Exit” to quit.

5.1.3. WEB OPERATION INTERFACE

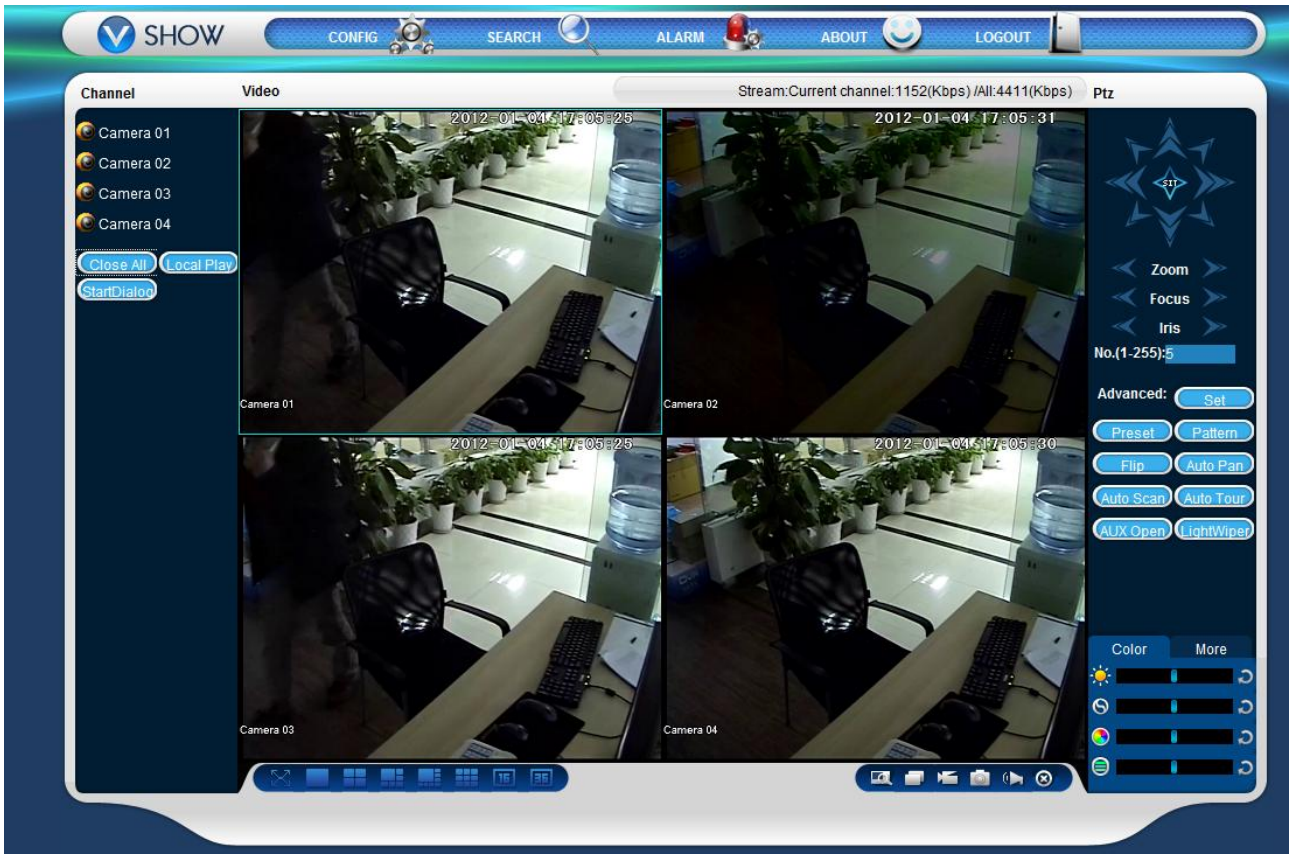


DIAGRAM 5-3 WEB INTERFACE

Index	Name	Description
1	Channel	Channel selection
2	Function key	Local playback: playback local record Open all: play live views in surveillance window
3	Surveillance window	Change window layout
4	Image color & other saturation	Image color: modify brightness, contrast and Other: set capture path, record download path and reboot
5	PTZ control	PTZ control menu
6	Menu	System config, record search, alarm setting, exit, etc.

FORM 5-1 DESCRIPTION

5.1.4. LIVE VIEW

Into the WEB interface, select the focus window in live window, the focus window has a light blue border.

From the left channel column select channel, as shown in Diagram 5-4 Channel Choices:

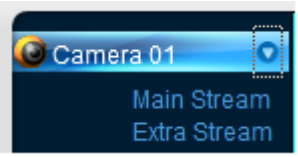


DIAGRAM 5-4 CHANNEL CHOICES

Click on 2 area in upper right corner can choose open / close the channel of the main stream or secondary stream, shows the current NVR's IP and rate information, as shown in Diagram 5-5 Stream information

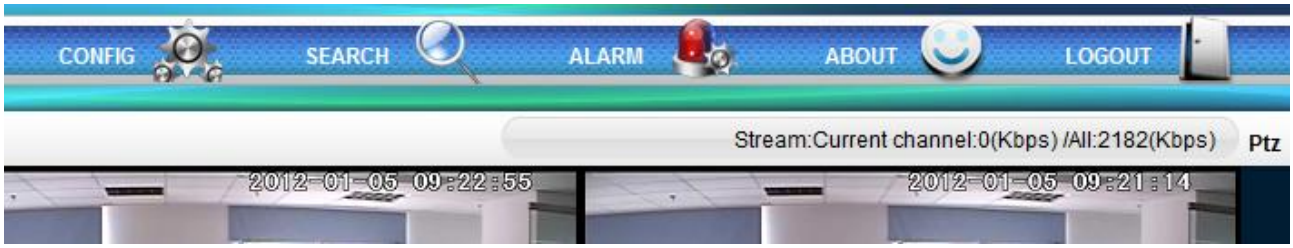


DIAGRAM 5-5 STREAM INFORMATION

Lower left corner shows the current video channel name.

Upper right corner shows the current video time information.

Click " "（Lower left corner of the display window）to switch between single screen and multi-screen.

Lower right corner of the display window is function keys, as Diagram 5-6 Function Key, refer to area zoom,Multi-screen switch ,local record, ,capture and mute/unmute audio.

Area zoom: Video images can be enlarged;

Multi-screen switch: switch from single screen to multi-screen and vice versa;

Local record: save and record video to a local HDD while in a live view. Set recording path in configuration;

Capture: capture of the present channel, set the path in "other";

Sound: on/off sound.

Off video: off the focus window video.

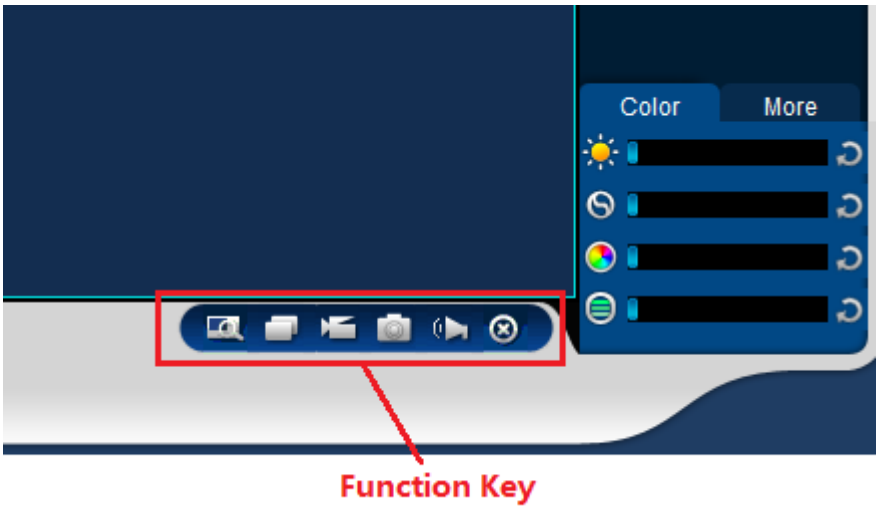


DIAGRAM 5-6 FUNCTION KEY

5.1.5. PTZ CONTROL

Set protocol（see【Setting】→【PTZ Config】）

Control PTZ direction, step size, zoom, IRIS, preset, tour, pattern, border scan, light, wiper, auto pan, etc.

Step size controls PTZ direction and speed, e.g. step size 8 is moved faster than step size 1.

Eight direction rotations: up, down, right, left, upleft, upright, lower left, lower right.

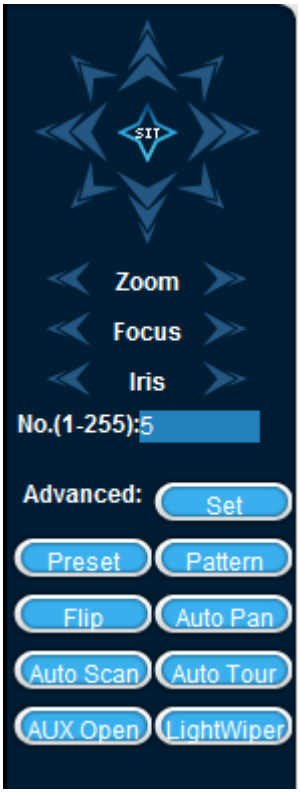


DIAGRAM 5-7 PTZ CONTROL

Border scan

Operation: select the camera line scan of the left/right margin by direction button, and click the Settings button in the left /right margin position to determine the left border.

Preset

Operation: modify preset position by direction button and inputting a preset number, then click “Add” to save.

Tour

Operation: select “Tour”; Point between the first cruise line cruise input box value. And input numbers in “Path” and “preset”. Click【Add Preset】to add one preset in the cruise path, and repeat to add additional presets. Click 【Clear Preset】to delete a preset, repeat to delete more.

Pattern

Operation: Click “Pattern” in order to record an automated pattern. Then, go back to the PTZ controls in order to modify the zoom, focus and IRIS, etc. Stop recording in “Pattern” setting to save the pattern.

AUX

On/off one of AUX

Wiper

On/off wiper under protocol

5.1.6. CONFIGURATION

Access NVR local configuration menu by click “System Setting”, the further details please refer【Local operation guide】(Diagram 5-8 CONFIGURATION).

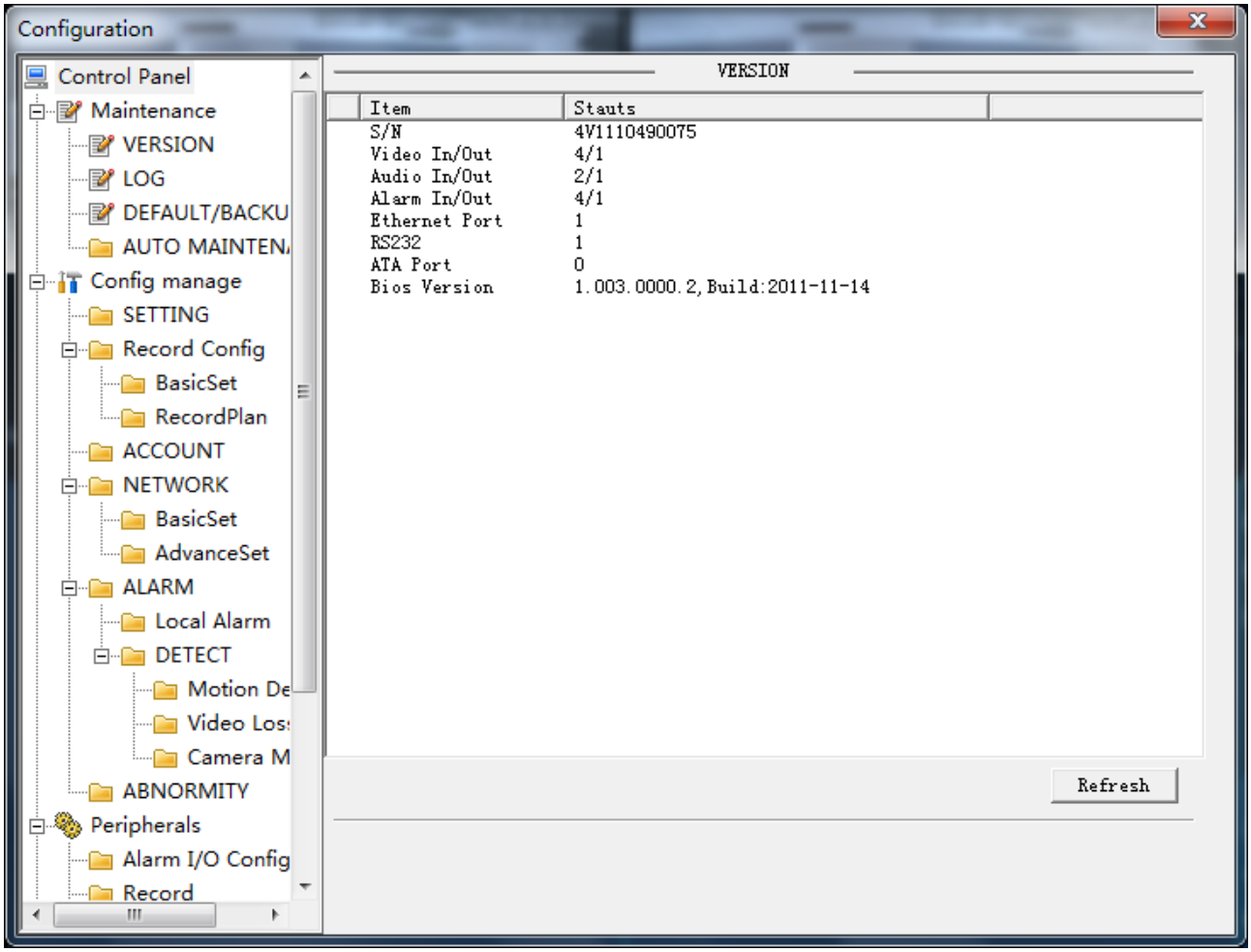


DIAGRAM 5-8 CONFIGURATION

5.1.7. SEARCH RECORD

Click “Search record” to open the search interface (Diagram 5-10), can search and operate record, alarm, motion, local record

Search record

By selecting the record type, start and end times, and click the check button, get a list of files on the NVR. Select the appropriate file and download can be played

Play

Double click a search result to play in video window. Control the playing video by the control keys on the bottom. At this point, the bottom of the video window will display the video control buttons, video playback can be controlled.

DIAGRAM 5-9 PLAYBACK CONTROL

Download: select a searched video to download to local. The download speed and percentage are displayed on the bottom of the screen.

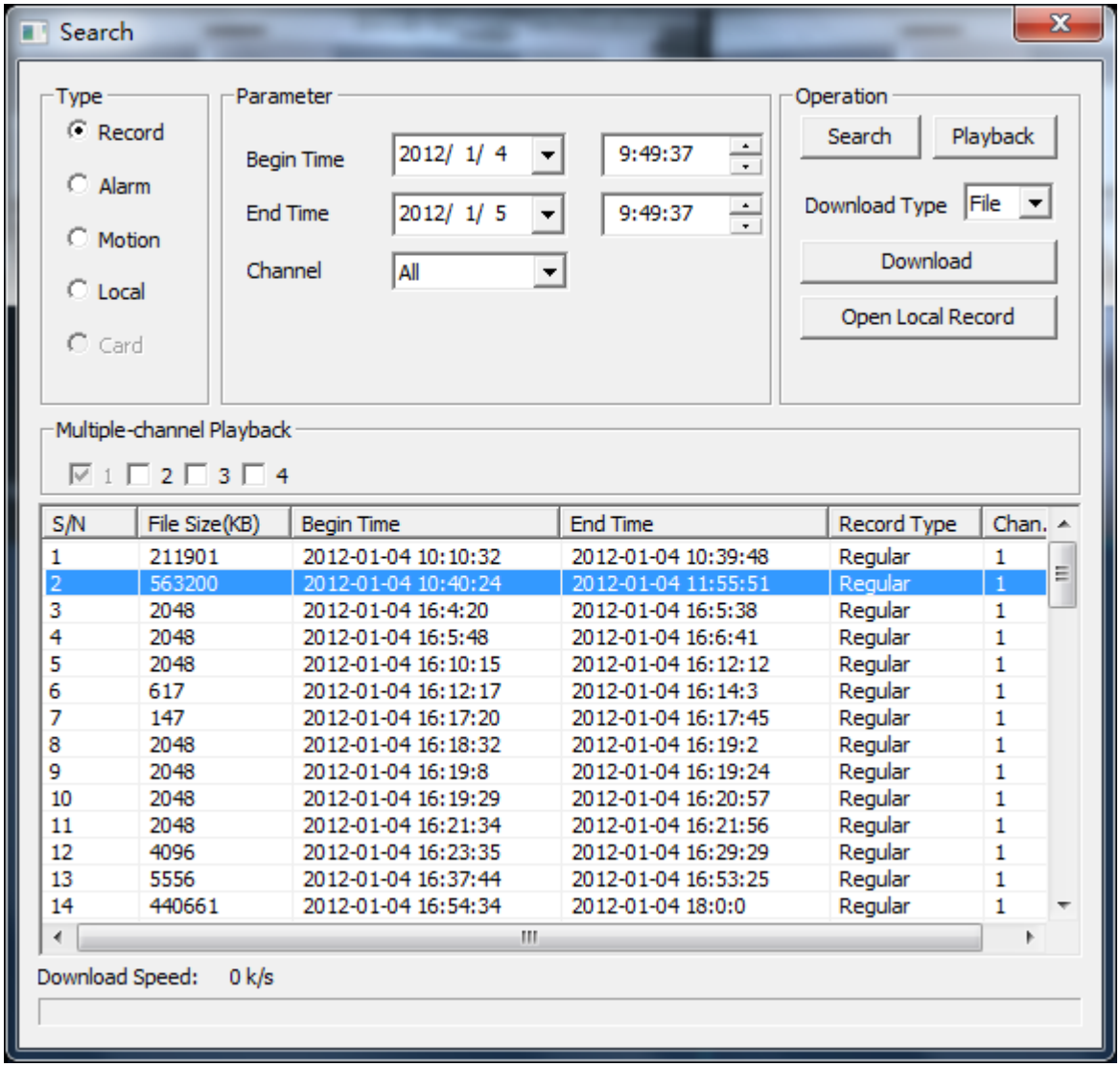


DIAGRAM 5-10 SEARCH RECORD

5.1.8. ALARM CONFIGURATION

Click the 【Alarm】 to enter the alarm setup menu, user set up and operate the alarm mode, as Diagram 5-11 Alarm .

Choose type of alarm on menu, monitor video loss, motion detection, disk full, disk error, video mask, extennal alarm.

Click 【Video Pop-up】, open the video loss, motion detection, hard disk full, hard disk failure, video block, video encoder alarm pop-up linkage.

Click 【prompt】, open the prompts: when an alarm occurs in real-time will pop-up alarm window menu.

Click 【Sound Pop-up】, you can choose alarm tone pre-recorded on the local hard drive when an alarm occurs, tone file in WAV format.

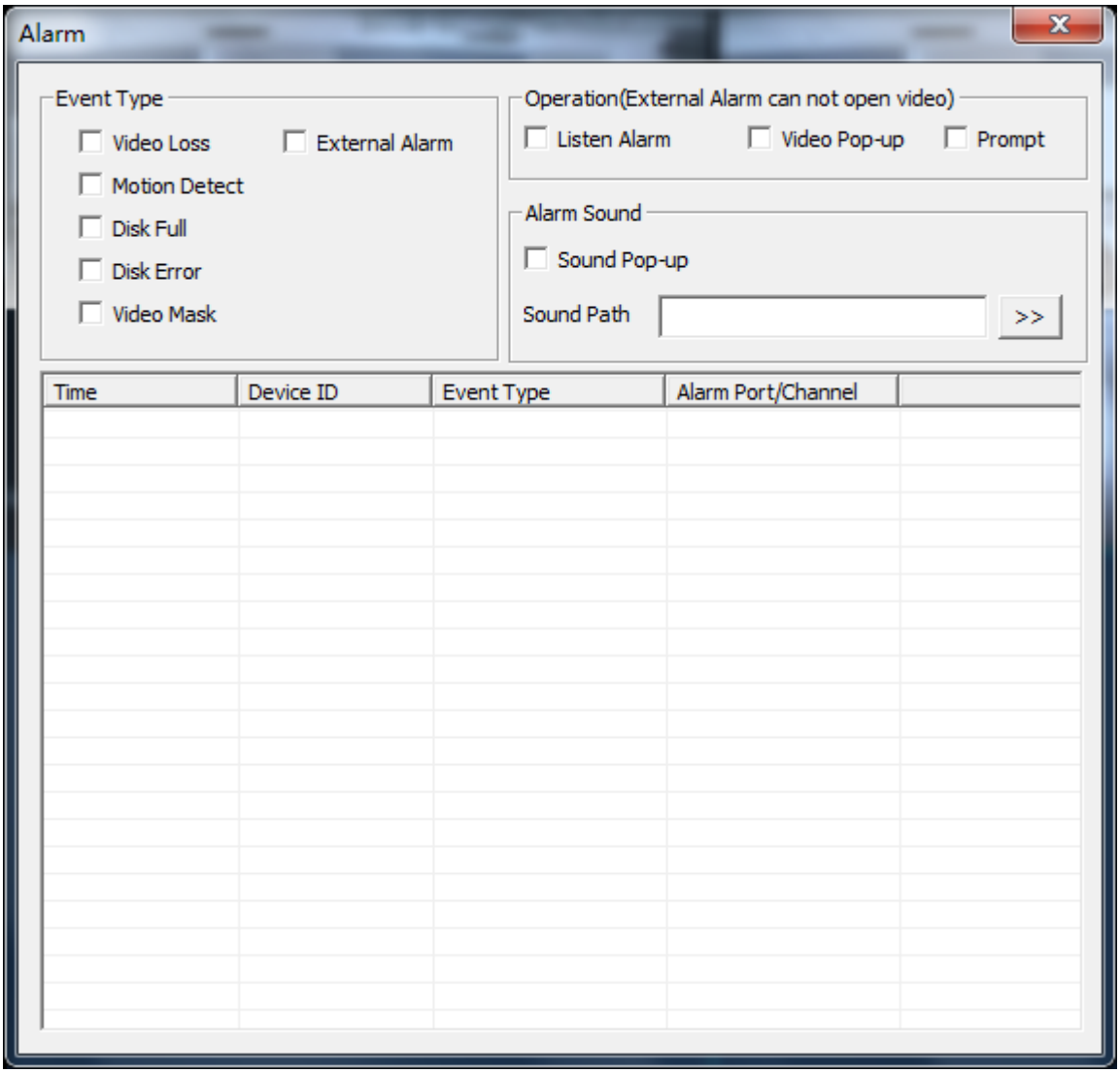


DIAGRAM 5-11 ALARM CONFIGURATION

5.1.9. ABOUT

Please refer to WEB controls related version information.

5.2. CLIENT OPERATION

Please refer to CMS Description

6. FUNCTION

6.1. DDNS FUNCTION

6.1.1. SUMMARY

Dynamic DNS is a kind of system which point internet domain name to variable IP. According to the rule of internet domain name, domain name must associate with the fixed IP address. Dynamic DNS provide a fixed Name server for the dynamic domain, and then guide the domain search to the IP address of dynamic user through Name server, which can make the outside user connect to the dynamic user's URL.

6.1.2. VSSIP

VSSIP is a professional dynamic domain name analysis server embedded in our company's NVR, please contact to the dealer or agent for account number of DDNS. Click the enable in the configuration window after getting the account number, and input the account number information and it will do.

6.1.3. CN99（WWW.3322.ORG）

Register

Register New Users or Login at www.3322.org.

Click "My Control Panel" at the navigation bar.

Click the left side, "new" under the DDNS.

Fill in the name of the host machine, IP address will automatically detect in the current internet. Leave the Mail Servers blank, and then click the "OK" button.

Embedded NVR Setting

Open 【Main Menu】→【Configuration】→【Network】→【Advanced】→【DDNS】→Enable

Name	Configuration
DDNS	CN99 DDNS
IP	Members.3322.org
Port	80
Domain name	xxx.3322.org

Username	xxx
Password	xxxxxx

After setting up the information as above, you can access the Embedded NVR via XXX.3322.org

Notice: The main machine's IP should refer to the information of the website.

6.1.4. NO-IP（WWW.NO-IP.COM）

Register

Register new username at no-ip, click 【Create Account】.

Create domain name, click 【Add a Host】.

Embedded NVR Setting

Open 【Main Menu】→【Management】→【Network】→【Advanced】→【DDNS】→【Enable】

Name	Configuration
DDNS	NO-IP DDNS
IP	dynupdate.no-ip.com
Port	80
Domain name	xxx.xxx.org
Username	xxx
Password	xxxxxx

6.1.5. DYNDNS DDNS（WWW.DYNDNS.COM）

Register

To login at dyndns, register an account.

Click on the confirmation link, login the account, click【Add Host Services】at [My Services], set your own realm name, and then operate according to the procedure.

Configuration of the Embedded NVR

Open 【Main Menu】→【Management】→【Network】→【Advanced】→【DDNS】→【Enable】

Name	Configuration
DDNS	Dyndns DDNS
IP	Members.dyndns.org
Port	80
Domain name	xxx.xxx.com
Username	xxx
Password	xxxxxx

6.1.6. TEST AND VERIFY DDNS

After setting the Embedded NVR, wait for a few minutes, analysis records will update. Click Operation in the Menu of computer, input “cmd”, click “OK” to open a window. As the Diagram 6-1 Run Command Line Program shows.

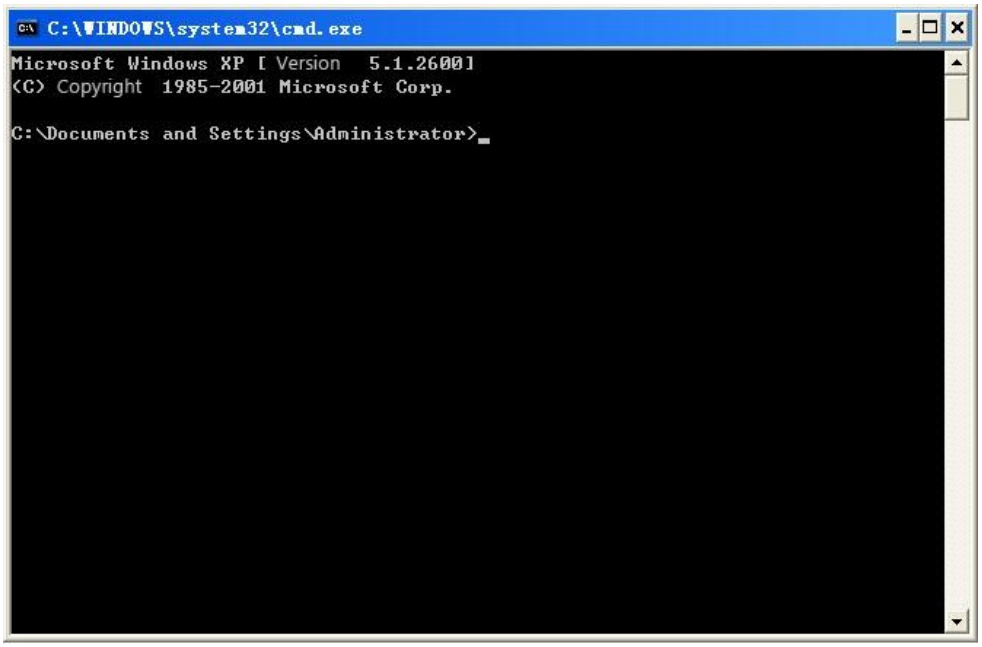


DIAGRAM 6-1 RUN COMMAND LINE PROGRAM

Input “ping+ Domain name” then presses Enter, as the Diagram 6-2 DNS shows.

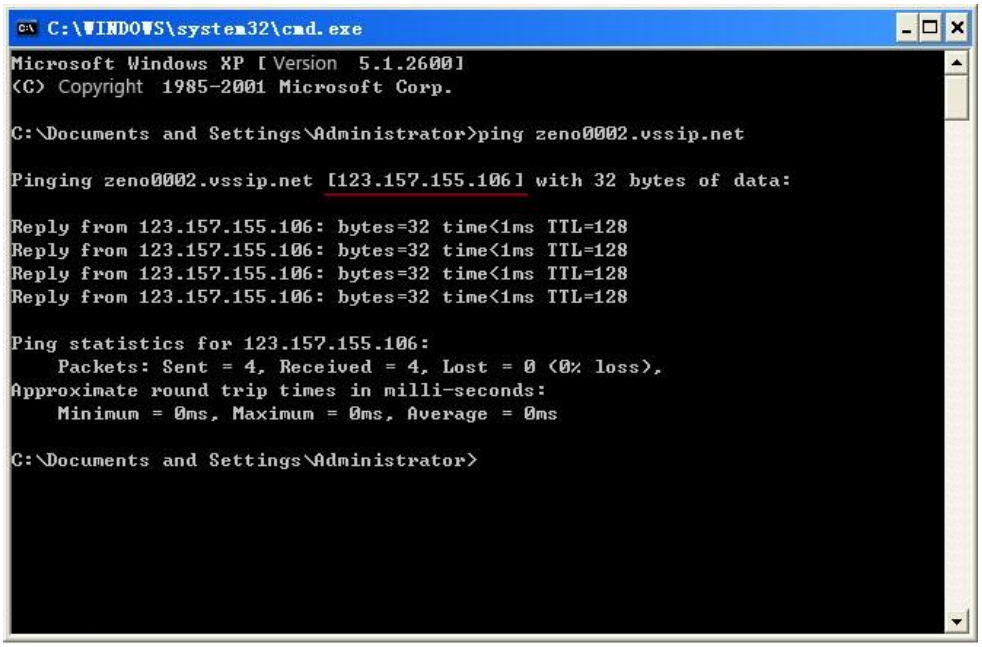

C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.
C:\Documents and Settings\Administrator>ping zeno0002.vssip.net
Pinging zeno0002.vssip.net [123.157.155.106] with 32 bytes of data:
Reply from 123.157.155.106: bytes=32 time<1ms TTL=128
Reply from 123.157.155.106: bytes=32 time<1ms TTL=128
Reply from 123.157.155.106: bytes=32 time<1ms TTL=128
Reply from 123.157.155.106: bytes=32 time<1ms TTL=128
Ping statistics for 123.157.155.106:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\Documents and Settings\Administrator>

DIAGRAM 6-2 DNS

The computer will analyses the domain name configurated in NVR, and return to the current IP, as the picture shows underlined in red. When the IP correspond to the embedded NVR's IP in Public internet, it means the DDNS is setting right. If they are not, please check the network connection of embedded NVR and DDNS information.

6.2. PORT MAPPING

Port mapping is mapping a port of outside web host's IP address to a machine inside web, and provide the service. When user connects to the port of the IP, the server will automatically map the request to the corresponding machine inside LAN.

With the function of port mapping, we can map many ports of a machine's IP address to different machines' different ports inside web. The port mapping can also have other special agent functions, like POP, SMTP, TELNET, etc.
Theoretically, it can provide more than sixty thousand ports.

For example, if we want to map a web server which has an IP address of 192.168.111.10, we just need to input the IP address and TCP port 80 into the port mapping chart of the router.

There are two ways to map the port: UPnP function automatically map and modify the router's port mapping chart by manual.

6.2.1. UPNP FUNCTION

In order to get connection to the Embedded NVR through Public network, we need to set the Router to cross the NAT of Embedded NVR. UPnP can make the NAT cross automatically by the UPnP agreement of Embedded NVR, and don't have to set the Router.

⚠ Note: to realize the UPnP Function, there must be Router support and enable the UPnP Function.

The first step

Connect the Router to the network, get to the Menu of the Router, set the Router, and enable the UPnP Function.

Routers made by different manufacturers may have some difference, please refer to the specification carefully before setting the Router.

The second step

Connect the Embedded NVR to the Router; the configuration will automatically gain the IP address or static IP. After setting up the IP, click the Advanced Config. And get to the XXX, ports and multicast etc. choose to open the Enable at the 【UPnP port mapping】

The third step

Enter into the Router management interface; detect the port if there is already a Port mapping. If there is, it shows UPnP setting's finished.

The forth step

Input the IP address in IE, and add port number of the Embedded NVR, for example: 155.157.12.227:81. If you want to enter by the Client Software, use the TCP port offered by the outer net.

⚠ Note: if there are a few embedded NVRs need to set the UPnP function, in order to avoid IP conflict, set the ports of embedded NVR into different ports numbers. Otherwise, it will choose the embedded NVR port set preceded as the first choice.

6.2.2. MANUAL PORT MAPPING

The first step

Connect the Embedded NVR to the Router, set the static IP.

The second step

Log in Router, enter into the configuration menu of Router, and set the menu. Then get to port, set the IP distributed by the Embedded NVR, and set the rule of port mapping, add HTTP and TCP port into mapping list.

Default access ports of Embedded NVR include HTTP port 80 and TCP port 8000, if the ports are occupied by the other devices, please modify the default port of the Embedded NVR into other vacant ports.

The third step

Input the public net IP address in the IE, and add the port number of the Embedded NVR you want to access after the IP, for example: http://155.157.12.227:81. If you want to access by Client Software, you can use the outer net TCP port directly.

⚠ Notice: for detail configuration setting, please refer to the user manual of Router.

6.3. NTP FUNCTION

Enable NTP function; make the time synchronization with both the NVR and GPS clock server, to ensure the accuracy of device time.

6.3.1. INTERNET CONFIGURATION

Get to the 【CONFIGURATION】→【NETWORK】, choose 【Advanced】, and then choose 【NTP】 to set.

After the device can access the Internet, NTP server can use the standard NTP server as the time. For example, the server of China's national research center (IP address: 210.72.145.44). Input the IP address and domain name of relative server at NTP setting.

To activate NTP, click to choose "Enable".

The interval of changing time is from 1 to 65535 minutes.

6.3.2. INTRANET CONFIGURATION

If NVR work under the intranet ,user can set up a privately-owned server as clock source.NTP address in NVR configuration fill in privately-owned NTP address can work.

Privately-owned NTP server can adopt standard NTP products and accurate time PC system. Please refer to below instruction when adopt PC system as a NTP server.

NTP Server Set Up under Windows

"Start" menu → "Run"(or Win+R), input "regedit" to get into REGEDIT.

Build a new key assignment of DWORD Value under :

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\W32Time\Parameters registry subkey;

Change the value to 1, and save.

Restart the computer.

NTP server set up under Linux system

Due to the particularity of Linux system, for detail way to erect the NTP server, please refer to every editions of the manual.

6.4. PTZ

In live screen, right click and select 【PTZ Control】 on control channel, as shown inDiagram 6-3 PTZ control.

6.4.1. PTZ CONTROL

From PTZ control menu, set direction step length, zoom, focus, iris, advanced features, auxiliary features, camera settings.

DIAGRAM 6-3 PTZ CONTROL

Step size ： Controls PTZ direction and speed, e.g. step size 8 is moved faster than step size 1. (Range 1-8, 8 is max value)

Click and of zoom, focus and IRIS to modify zoom, focus and brightness.

Eight direction rotations: up, down, right, left, upleft, upright, lower left, lower right.(Front panel just 4 direction)

Quick location: <SIT>in the middle of the direction arrows, make sure the protocol support this function, only mouse control. Click any point, PTZ will turn to it and move it to the centre of screen

Mouse drag on quick location page, support 4 ~ 16 times variation, drag from top left to bottom right to zoom in box , drag from bottom right to top left for zoom out box .

Advanced Function

Click page switch into the advanced function, as shown in Diagram 6-4 PTZ-Advanced

【Preset】: Input the wanted preset number which has been recorded. Then click the preset button to call the function.

【Tour】: Input the tour number and click “tour” to run it or stop tour by “stop” button.

【Patrol】: Input the patrol number and click “patrol” to on the function. The camera will work under the created patrol path. Right click to hide the menu.
Click the direction key in menu to stop the patrol.

【Line】: Click “line” call the line scan function as per set line to scan, the button will turn to【Stop】, if you want to stop the motion, click it.

DIAGRAM 6-4 PTZ-ADVANCED

AUX

Click “Page Switch” to enter the AUX interface. (Corresponding with protocol) Diagram 6-5 Aux function

DIAGRAM 6-5 AUX FUNCTION

PTZ SETTING

Click 【P/T/Z】to set【Preset】, 【Tour】, 【Pattern】, 【Border】. Gray keys represent unsupported function (Diagram 6-6 Preset setting).

DIAGRAM 6-6 PRESET SETTING

【Preset】setting:Diagram 6-6 Preset setting, set camera position through the direction key

Click【Preset】and input value number, Click【Set】to save these coordinates to that preset number

【Tour】setting: Select "Tour", as Diagram 6-7 Tour, input numbers in "Path" and "Preset". Click【Add Preset】to add one preset in cruise path, repeat to add more than one presets. Click 【Clear Preset】to delete a preset, repeat to delete more.（clear preset cannot be supported by some protocols）

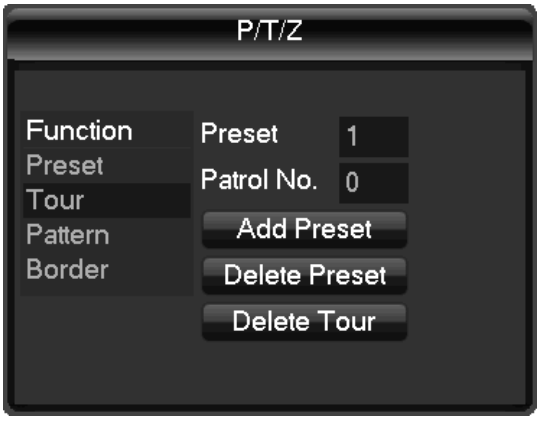


DIAGRAM 6-7 TOUR

【Pattern】setting: click【Pattern】, as Diagram 6-8 Pattern, record the process as Pattern "X", click【Begin】, back to PTZ control menu to modify 【zoom】,【focus】and【IRIS】, etc. then back to below menu for 【Stop】

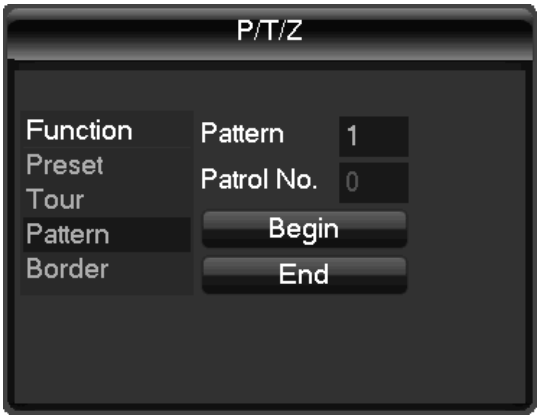


DIAGRAM 6-8 PATTERN

【Border】setting: Click【Border】, as Diagram 6-9 Border. Move camera to left/right Boundary by direction key and click 【Left Border】and【Right Border】to confirm the setting.

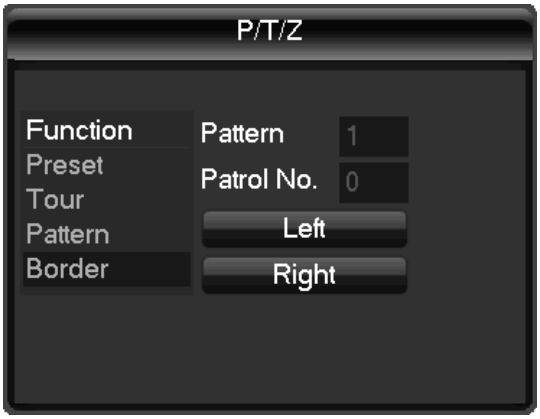


DIAGRAM 6-9 BORDER

6.4.2. CAMERA SETTING

Click “Page Switch” to enter the camera setting interface. (Only support part protocol)(Diagram 6-10 Camera Setting)【Enter】or【Exit】can access or quit the camera setting menu.

Click “Page Switch” to back to interface Diagram 6-3 PTZ control

Direction key is mainly used to internal menu control i.e. camera menu control. The button indicates according to the protocol, such as: shadowed button means unsupported .Up/Down key shift menu item, Left/Right key change function.

DIAGRAM 6-10 CAMERA SETTING

6.5. VOICE INTERCOM

6.5.1. SUMMARIZE

Embedded NVR Bidirectional Talk: user can talk to remote client software or Web via NVR audio input and output ports; user can listen voice from Client Software and WEB via NVR audio output ports.

Two types of bidirectional talk ---- sharing and standalone ----for different models, exact info please refer to specifications.

6.5.2. CONFIGURATION

Local configuration

Connect a microphone to the MIC input port, connect loudspeaker to the audio output port.

If no standalone MIC input port, please connect microphone to the number 1 audio input port

⚠ Note: local output needs active audio output device.

Remote PC Configuration

Connect microphone and loudspeaker to computer.

Enable bidirectional talk in IMS software or WEB.

6.6. HDD REDUNDANCY

HDD redundancy function can backup the recording file, user can retrieve files by HDD redundancy if single HDD damaged, by which improve the system’s safety.

Hard disk redundancy function is through the designated channel data double backup in HDD, so NVR need a standalone HDD for redundancy function.

HDD redundancy configuration

Open main menu enter into the storage configuration, choose one HDD as the redundancy HDD, click setting.

Redundancy HDD must be an independent HDD, user can set several HDDs as a redundancy HDD group. Once a HDD is assigned as redundancy HDD, the recording data can be saved in both normal HDD and redundancy HDD.

Data on redundancy HDD should be automatically cycle coverage, cycle period depends on the recording data and redundant HDD's capacity.

Note: Make sure 2pcs HDD at least in NVR, one for read and write, another for redundancy.

Channel redundancy configuration

User can choose part channels or all channels to set redundancy backup. Please get to 【Configuration】→【Record】, choose redundancy channel, check mark 【Redundancy】.

Note: the data in channel turn off redundancy only is recorded in normal reading and writing HDD if the redundancy is not enabled.

Retrieve HDD redundancy

User can retrieve backup recording data from redundancy HDD when RW HDD damage or data lost. Firstly, shut down NVR and remove damaged HDD, then restart NVR;

Secondly, Get into 【Main menu】→【Storage】, set redundancy HDD as a reading and writing HDD, then it can be searched.

6.7. HDD S.M.A.R.T

S.M.A.R.T: "Self-Monitoring, Analysis and Reporting Technology"

S.M.A.R.T HDD can analysis head, disc, motor, circuit operation, history and default security values via monitor instruction in HDD and surveillance software in host. Alarm will be sent to user automatically when the value is outside the scope of the security situation.

Detection parameters of Seagate HDD for example are divided into seven: ID detection code, Attribute Description, Threshold, Attribute Value, Worst, Date, and Status.

1 ID detection code

ID detection code is not the only; manufacturer can use different ID code or increase or decrease its quantity according to the detected parameter's quantity.

For example: the ID detection code of WEASTERN DIGITAL's product is "04", parameter is Start/Stop Count, but the parameter of same code in Fujitsu's product is "Number of times the spindle motor is activated".

2 Attribute Description

Attribute Description: name of detection item. Manufacturer can increase or decrease . As ATA standard update constantly, sometimes different models in same brand maybe different ,but must ensure major test items specified in S.M.A.R.T .(although different manufacturers have specific naming convention ,the essence of monitoring is the same.)

1 Read Error Rate

2 Spin up Time

4 Start/Stop Count

5 Relocated Sector Count

7 Seek Error Rate

9 Power-on Hours Count

10 Spin up Retry Count

194 Power temperatures

195 ECC on the Fly count

197 Current Pending Sector Count

198 Disconnection beyond repair

199 CRC cyclic redundancy check

200 Write Error Count

Note: Different manufacturers and different models have different attribute description ,user has no need to know exact meaning ,attribute detection values enough for them.

3 Threshold

It is specified by manufacturer calculated through a specific formula. If there is a attribute value lower than the threshold, which means HDD become unreliable and data stored is very easy to lose. Composition and

size of reliable attribute values is different for different HDD. It should be noted that, ATA standard only provides some SMART parameters; it does not provide a specific value. "Threshold" value is determined by manufacturers based on products' features. Thus, results tested by manufacturer provided detection software is very different from testing software under Windows (such as AIDA32)

4 Attribute Value

Attribute value is the maximum normal value; the general range is from 1 to 253. Typically, the maximum attribute value is 100 (for IBM, Quantum, and Fujitsu) or 253 (for Samsung). Of course, there are some exceptions, for example, some models produced by Western Digital have two different attribute values, and property value is set 200 when initial production, but after then it is changed into 100.

5 Worst

Worst value is the largest non-normal value in HDD's running. It is a value calculate for HDD's cumulative running, it is constantly refreshed according to running cycle, and very closed to the threshold. Whether the HDD is normal by S.M.A.R.T analysis is based on the comparison with threshold. The maximum value appear when new HDD start to use, which would continue to decrease with the everyday use or error happen. Consequently, larger attribute values mean better quality and higher reliability; smaller values mean more possibility of failure increases.

6 Dates

Actual values of HDD's detection items, many items are cumulative values.

7 Status

It is current statues of HDD's every attribute after analyzing and comparing above attribute values by S.M.A.R.T, also is important information to judge HDD healthy or not.

There are three statuses: Normal, Alarm and Error----which is closely related with Pre-failure/advisory BIT.

7. APPENDIX

7.1. TERMS

Dual-stream

Dual-stream: one high bit rate stream for the local HD store, QCIF/CIF/2CIF/DCIF/4CIF coding, other low bit rate stream for network transmission, such as QCIF / CIF coding,

I Frame

I frame: intra frame image, remove redundant information to compress the transmittal data, also called key frames.

B Frame

B frame: According to time redundant of the source image sequence previously encoded frame and account the source image after the encoded frame to compress transmittal data, also known as bi-directional prediction frame.

P Frame

P-frame: according to image frame lower than the previous ’time redundant to compress transmittal data, also called predicted frames.

Wide Dynamic

Bright parts and dark parts in particular can be seen very clearly at the same time. Wide dynamic range is a ratio between the brightest luminance signal value and the darkest value.

S. M. A. R. T

SMART (Self Monitoring, Analysis and Reporting Technology): now widely used in hard disk data security technology, monitoring system analysis Motor, circuit, HDD and disk head when HDD working, warn when abnormality, sometimes will automatically slow down and back up data.

CVBS

Composite Video Broadcast Signal, consists of luminance and color signal from the composite baseband signal.

BNC

Coaxial cable connector, composite video signals or audio signals, commonly use 75 ohm connectors. BNC welding and should pay attention to weld strength and remove burrs, or the signal wire and shield's contact will lead to a substantial attenuation of signal strength

7.2. HDD CAPACITY CALCULATION

7.2.1. REFERENCE OF HDD CAPACITY CALCULATION

The first time install NVR, please check if the HDD has installed.

The capacity of the HDD

There is no limitation of capacity of single HDD to NVR, please choose the HDD according to the Vedios' saving time.

The choose of the Capacity

Computational formula of HDD Capacity:

Whole HDD Capacity = number of the channels ×time in need (hour) ×spent of HDD Capacity per hour (MB/hour)

Similarly we can have the formula of recording time:

$$Recording time\ (hour) = \frac{Total HDD Capacity\ (\mathrm{MB})}{Capacity Occupation per Hour\ (\mathrm{MB}/hr) \times Amount of Channel}$$

Note: 1GB=1000MB, not 1GiB=1024MiB, so HDD capacity shown in Base Configuration under HDD Management less than real marked.

File size per hour (CBR).

Bit Rate	File	Bit Rate	File	Bit Rate	File
96k	42M	320k	140M	896k	393M
128k	56M	384k	168M	1.00M	450M
160k	70M	448k	196M	1.25M	562M
192k	84M	512k	225M	1.50M	675M
224k	98M	640k	281M	1.75M	787M
256k	112M	768k	337M	2.00M	900M

FORM 7-1 RECORD FILE SIZE

File size is more unpredictable when VBR style, please refer to the real size of recording file.

7.2.2. HARD DISK PROBLEM

Use Detection Tool provided by the HDD manufacturer to detect the Function of HDD to solve data problem.

We recommend Seagate and Western Digital.

How to detect Seagate HDD

a) Get into www.seagate.com， Click Support & Downloads →choose Sea Tools, download tool, as Diagram 7-1:

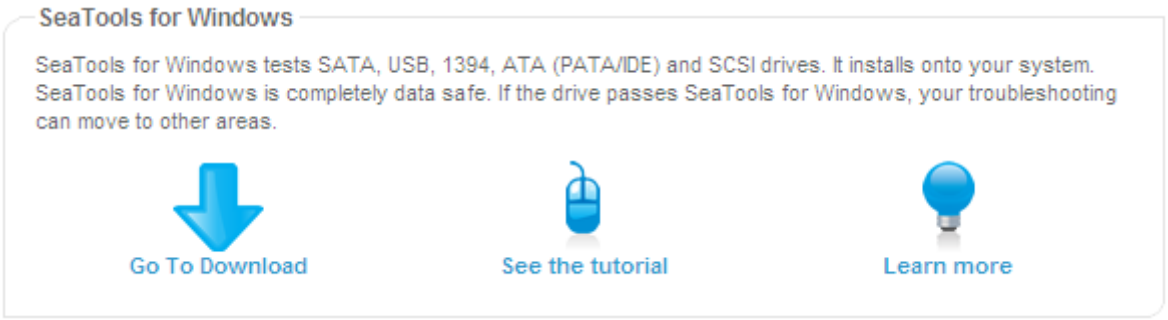

SeaTools for Windows
SeaTools for Windows tests SATA, USB, 1394, ATA (PATA/IDE) and SCSI drives. It installs onto your system. SeaTools for Windows is completely data safe. If the drive passes SeaTools for Windows, your troubleshooting can move to other areas.
Go To Download
See the tutorial
Learn more

DIAGRAM 7-1 SEAGATE DOWNLOAD

b) Double-click to install downloaded file, click installed file to detect the HDD information on PC.

c) Choose the HDD for detection (other manufacturer's hard disk suitable too) .

How to detect WDC HDD

a) Get into www.wdc.com , choose WD support / download / SATA&SAS / WD Caviar / GP, download software as Diagram 7-2 WD Download

WD Support / Downloads / SATA & SAS / WD Caviar Green / GP
Downloads
WD Caviar Green / GP
SATA & SAS
Installation
Downloads
Knowledge Base
Discussions
Available Downloads
Acronis True Image WD Edition
Advanced Format Software
(Only for Windows XP users with WD Advanced Format Drives)
Data Lifeguard Diagnostic for DOS
Data Lifeguard Diagnostic for DOS (CD)
Data Lifeguard Diagnostic for Windows

DIAGRAM 7-2 WD DOWNLOAD

b) Click Icon to hard disk detection after downloading.

c) Double click hard desk in device list, as Diagram 7-3 WD Detection:

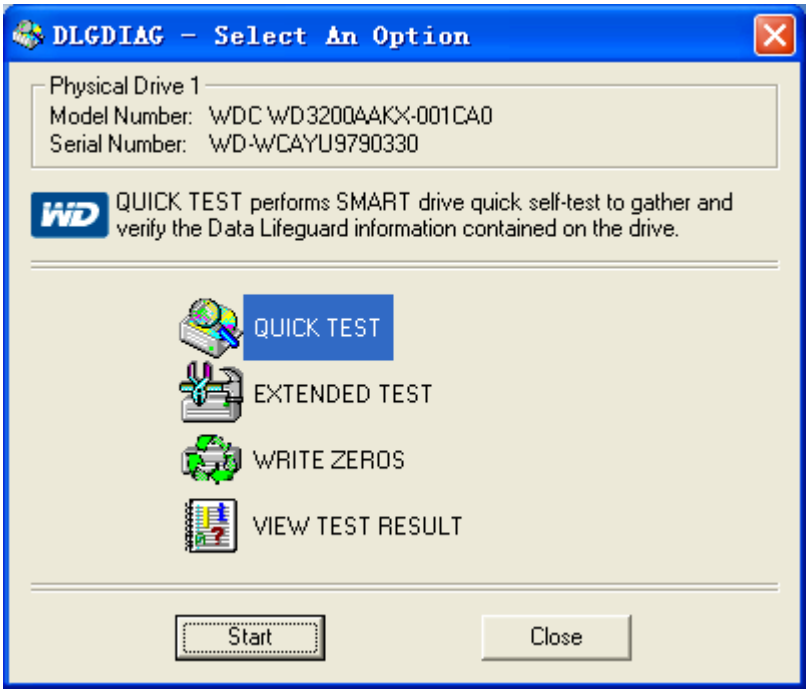

DLGDIAG - Select An Option
Physical Drive 1
Model Number: WDC WD3200AAKX-001CA0
Serial Number: WD-WCAYU9790330
QUICK TEST performs SMART drive quick self-test to gather and verify the Data Lifeguard information contained on the drive.
QUICK TEST
EXTENDED TEST
WRITE ZEROS
VIEW TEST RESULT
Start
Close

DIAGRAM 7-3 WD DETECTION

7.3. COMMON FAULTS

NVR startup failure or continuously reboot

Possible reasons:

1. The system has been damaged from a bad NVR update.
2. There is a problem with the NVR main board error, please contact supplier.
3. There is an HDD error. Replace faulty HDD.

Remote control does not work

Possible reasons:

1. Check for batteries in remote control , especially Positive and Negative;
2. Check for batteries' power;
3. Check if remote receiver is obscured;

3 Check if NVR address correspond to the remote control address .

NVR cannot control PTZ

Possible reasons:

1. RS-485 cable connection error, A, B ports are inversely connected;
2. PTZ decoder, protocol, baud rate, address are incorrect;
3. Parallel connect a 120Ω resistance to resolve signal reflex caused by too many PTZs on the line.
4. The RS-485 port on NVR is defective

Blurred screen in preview mode

Possible reasons:

Please make sure your cameras match your video format selected in the General menu. E.g. camera is NTSC standard but the NVR is PAL standard, the preview would be blurred.

Blurred screen in playback mode or failure to playback records

Possible reasons:

1. Procedure error, reboot the NVR

2. HDD error, test or change out the HDD

3. NVR hardware failure, contact your local supplier

Can not connect NVR through network

Possible reasons:

1, check the physical network connection is correct.

2, check the NVR network configuration parameters.

3, check whether IP conflicts exist in network.

Download recording can not be played

Possible reasons:

1 Player installation error.

2 The USB or HDD device has an error.

3 Do not install graphic software later than DX8.1.

Internet Explore Crash

Possible reasons:

Close IE explore, enter into the tool bar

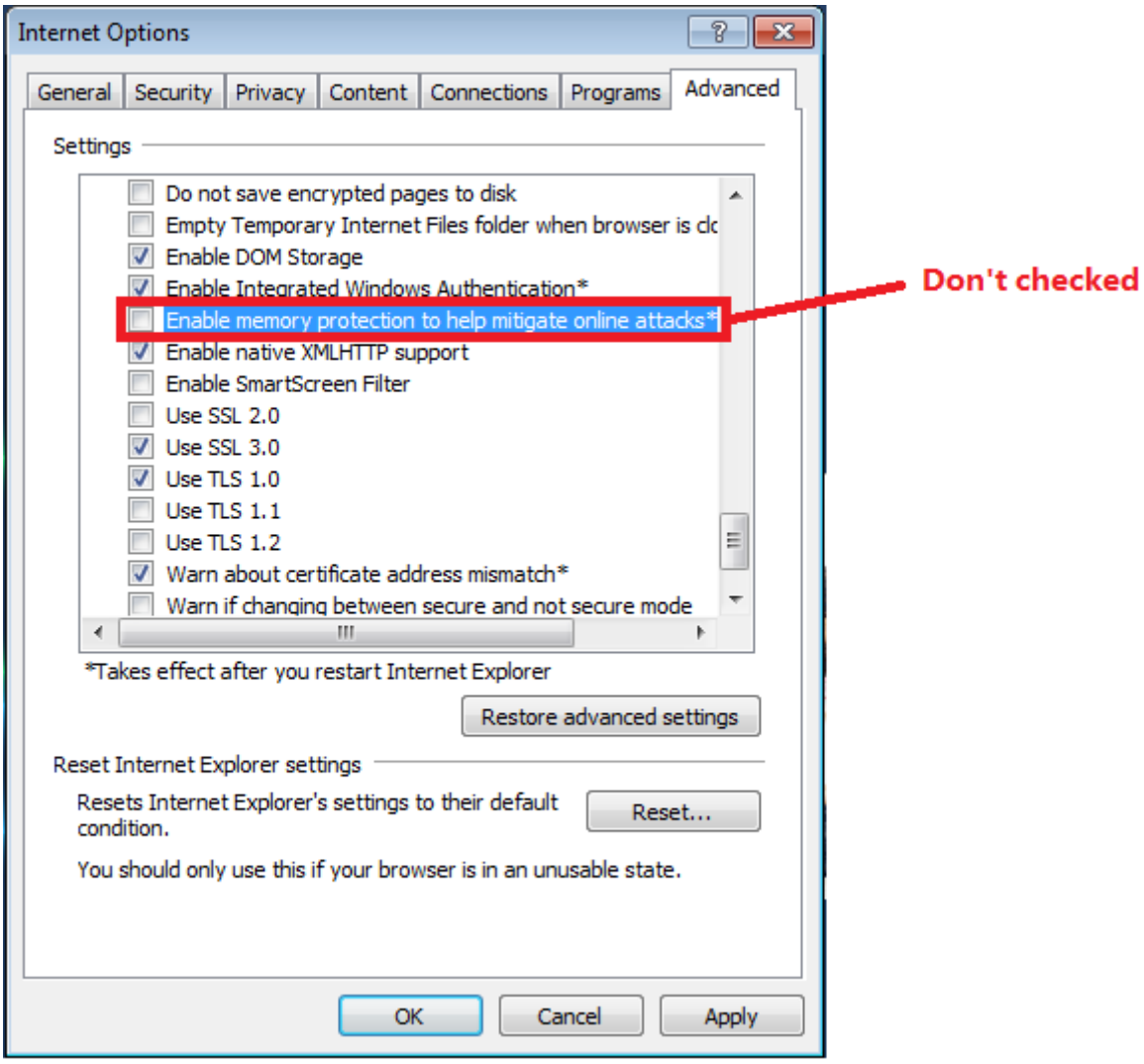


DIAGRAM 7-4 IE TOOL BAR

Visit under Internet Explorer 9.0

Possible reasons:

Internet Explore9.0 above version visit: Please choose compatible mode.